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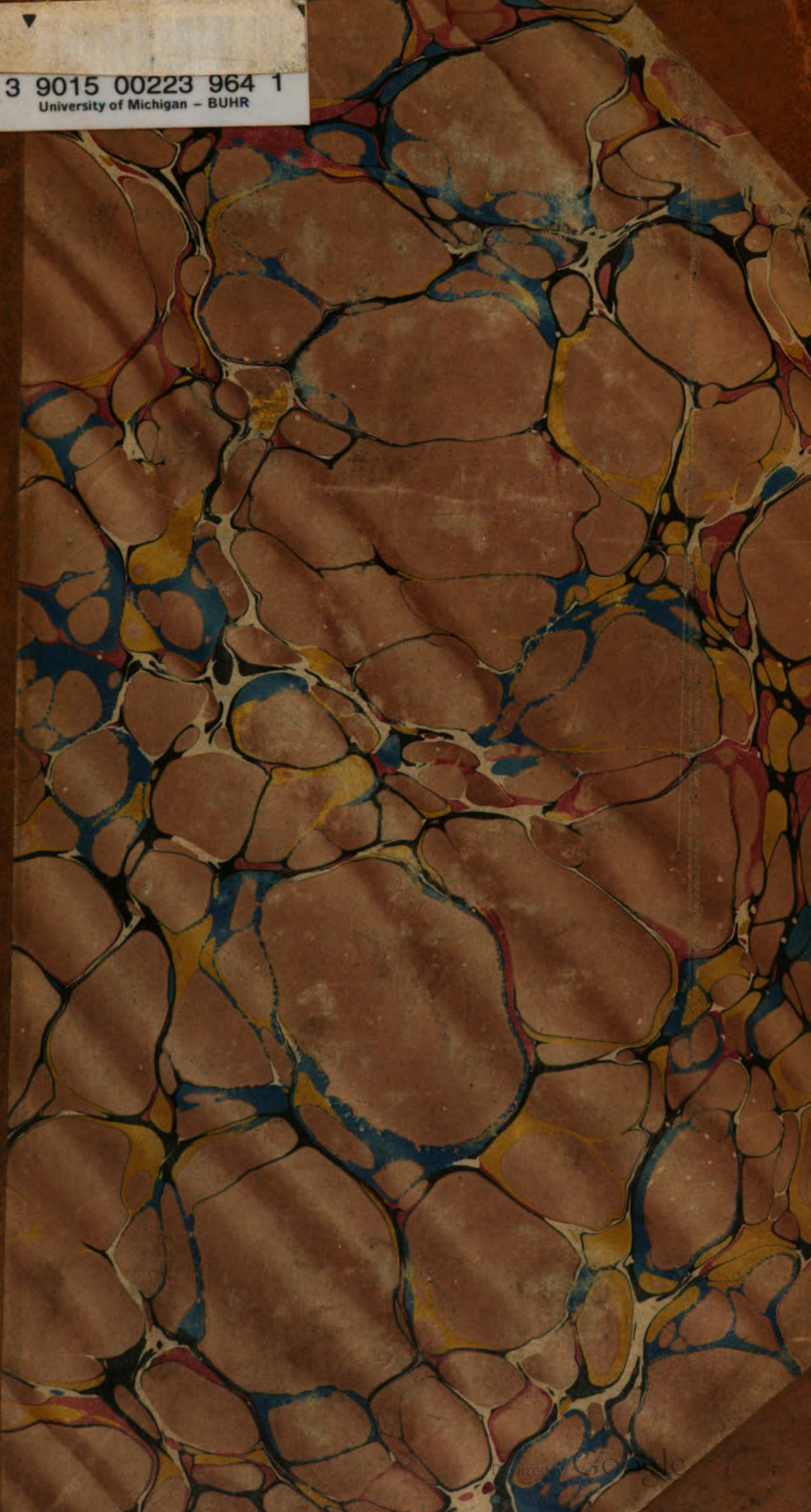

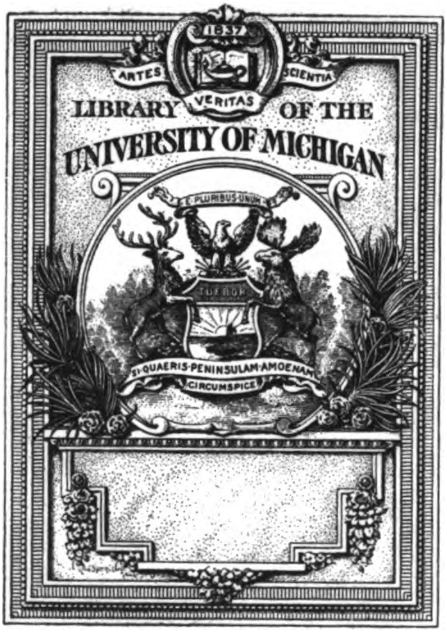
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CONTENTS OF No. IX.

OF THE

BRITISH AND FOREIGN MEDICO-CHIRURGICAL REVIEW.

JANUARY, 1850.

PAGE

ART. I.—1. Physiology of the Nervous Sytem. By ROBERT B. TODD, M.D., F.R.S., Fellow of the Royal College of Physicians, Professor of Physiology and of General and Morbid Anatomy in King's College, London, &c. &c. (From the Cyclopædia of Anatomy and Physiology) 1

2. The Lumleian Lectures for 1849.—On the Pathology and Treatment of Convulsive Diseases. Delivered at the Royal College of Physicians, London. By ROBERT B. TODD, M.D., F.R.S., &c. &c (From the Medical Gazette) . . . . ib.

3. The Gulstonian Lectures for 1849.—On the Nervous System. Delivered at the Royal College of Physicians, London. By W. W. GULL, M.D., Fellow of the College, and Fullerian Professor of Physiology at the Royal Institution of Great Britain, &c. &c. (from the Medical Times) . . ib.

ART. II.—1. Traité Théorique et Pratique des Maladies des Yeux. Par A. L. DESMARRES, M. D., Professeur de Clinique Ophthalmologique, &c. . 51

Theoretical and Practical Treatise on the Diseases of the Eyes. By Dr. A. L. DESMARRES, Professor of Clinical Ophthalmology, &c.

2. Die Operative Chirurgie von JOHANN FRIEDERICH DIEFFENBACH. Zweiter Band . . . . . . ; . . . . ib.

The Operative Surgery of J. F. DIEFFENBACH. Second Vol. (Chapters XCIV to CXX inclusive.)

ART. III.—Guy's Hospital Reports. Vol. VI. Part II 74

ART. IV.—1. Sketches of the Medical Topography and Native Diseases of the Gulf of Guinea, Western Africa. By WILLIAM F. DANIELL, M.D., Assistant Surgeon to the Forces, &c. 85

2. A Treatise on the Public Health, Climate, Hygiène, and Prevailing Diseases of Bengal and the North-West Provinces. By KENNETH MACKINNON, M.D., Surgeon and Medical Storekeeper . . . . . . ib.

ART. V.—1. The Anatomy of the External Forms of Man; intended for the Use of Artists, Painters, and Sculptors. By Dr. J. FAU. Edited, with Additions, by ROBERT KNOX, M.D., Lecturer on Anatomy. &c. . . 108

2. Ueber Marc' Antonio della Torre und Leonardo da Vinci, die Begründer Bildlichen Anatomie. Von Dr. KARL F. H. MARX . . . . ib.

On Marc Antonio della Torre and Leonardo da Vinci, the Founders of Inconographical Anatomy. By Dr. K. F. H. MARX.

PAGE

Art. VI.—A Practical Treatise on Inflammation of the Uterus and its Appendages, and on Ulceration and Induration of the Neck of the Uterus. By James Henry Bennet, M.D., &c. &c. 115

Art. VII.—The Microscopic Anatomy of the Human Body in Health and Disease. Illustrated with numerous Drawings in Colour. By Arthur Hill Hassall, M.B., M.R.C.S., F.L.S., &c. 154

Art. VIII.—Om Spedálskhed. Ved D. C. Danielssen, overlæge ved Hospitalerne for Spedálske i Bergen, og C. W. Boeck, Lector i Medicin ved Universitetet i Christiania 171

On Spedálskhed. By D. C. Danielssen, Head-Physician to the Hospital for Spedálskhed Patients in Bergen, and C. W. Boeck, Lecturer on Medicine in the University of Christiania. . . . . . .

Art. IX.—On Gout; its History, its Causes, and its Cure. By William Gairdner, M.D. 183

Art. X.—A Treatise on Diseases of the Bones. By Edward Stanley, F.R.S., President of the Royal College of Surgeons of England, and Surgeon to St. Bartholomew's Hospital 193

Art. XI.—1. History of the Cholera in Exeter in 1832. By Thomas Shapter, M.D., Physician to the Devon and Exeter Hospital 215

2. Uber die Heilung der jetzt-epidemisch Cholera. Von Dr. L. Grünberg, Militärarzte . . . . ib.

3. Mémoire sur le Développement, les Causes, et le Traitement du Choléra. Par Ch. Doorjak, Médecin de la Cour Impériale . . . . ib.

4 Treatment of Cholera in the Royal Hospital, Haslar. By John Wilson. M.D., F.R.S., Inspector of Naval Hospitals and Fleets . . ib.

5. The Leading Phenomena of Epidemic Cholera. By Ambrose Blacklock, Assistant-Surgeon, Madras Med. Est. . . . . . ib.

6. Contributions to the Pathology of Cholera. By James Bird, A.M., M.D, late Physician-General, Bombay Army . . . . . ib.

7. Treatise on Cholera. By N. Alcock, A.B., M.D. . . . ib.

8. Inquiry into the Actual State of our Knowledge of Cholera. By Alex. Knox . . . . ib.

9. Cholera, an Analysis of, &c. By H. Stephens, Esq. . . . . ib.

10. Mode of Communication of Cholera. By John Snow, M.D. . . ib.

11. The Cholera at Malta in 1837. From the Italian of Guiseppe Stilon, M.D., By Seth B. Watson, M.D. . . . . ib.

12. The Cholera considered Psychologically. By Forbes Winslow, M,D., . ib.

13. Malignant Cholera; its mode of Propagation and its Prevention. By William Budd, M.D., Physician to the Bristol Infirmary . . . . ib.

14. Report of a Series of Microscopical Investigations of the Pathology of Cholera. By F. Brittan, M.D. (From the London Medical Gazette) ib.

15. Quarterly Returns of the Marriages, Births, and Deaths registered in England. Published by Authority of the Registrar-General. (Nos. 1, 2, and 3, for the Quarters ending March, July, and September, 1849) . ib.

Art. XII.—The Phgsiology of Digestion considered with Relation to the Principles of Dietetics. By Andrew Combe, M.D. Ninth Edition, edited and adapted to the present state of Physiological and Chemical Science, by James Coxe, M.D., F.R.C.S.E. 226

Art. XIII.—On the Logical Applications of Physiology to Pathology: an Introductory Lecture to the Course of the Principles and Practice of Medicine. By Walter H. Walshe, M.D., Professor of Medicine in University College, &c. &c. 230

Bibliographical Notices.

PAGE

Art. I.—First Principles of Medicine. By Archibald Billing, M.D., A.M. F.R.S., &c. &c. Fifth Edition, revised and improved 233

Art. II.—The Sea-side Book; being an Introduction to the Natural History of the British Coasts. By W. Harvey, M.D., M.R.I.A., Keeper of the Herbarium of the University of Dublin. New Edition 234

Art. III.—On the Habitual Use of Opium in Singapore. By R. Little, Esq., Surgeon 236

Art. IV.—A Manual of the Dissection of the Human Body. By Luther Holden, F.R.C.S., Demonstrator of Anatomy at St. Bartholomew's Hospital. Part II 237

Art. V.—A Popular History of British Sea-weeds; comprising their Structure, Fructification, Specific Characters, Arrangement, and General Distribution; with Notices of some of the Fresh-water Algæ. By the Rev. D. Landsborough, A.L.S. 238

Art. VI.—The Races of Man, and their Geographical Distribution. By Charles Pickering, M.D., Member of the Scientific Corps attached to the United States Exploring Expedition . . . . ib.

Art. VII.—Demonstrations of Anatomy; being a Guide to the Knowledge of the Human Body by Dissection. By George Viner Ellis, Junior Professor of Anatomy in University College, London. Second Edition, rewritten . 240

Art. VIII.—1. Portraits of Diseases of the Skin. By Erasmus Wilson, F.R.S. Fasciculus VI 241

2. Surgical Anatomy. By Joseph Maclise. Fasciculus IV . . . ib.

3. Pathology of the Human Eye. By John Dalrymple, F.R.C.S. Fascic. III ib.

Art. IX.—Elementos de Higiene Privada. Por D. Pedro Felipe Monlau, M.D., Primer Ayudante del Cuerpo de Sanidad Militar, &c. 243

Elements of Private Hygiene. By Don P. F. Monlau, M.D., First Assistant of the Military Sanitary Corps, &c.

Art. X.—The Druggist's General Receipt Book; comprising a Copious Veterinary Formulary and Table of Veterinary Materia Medica; numerous Recipes in Patent and Proprietary Medicines, Druggists' Nostrums, &c.: Factitious Mineral Waters, and Powders for preparing them; Perfumery and Cosmetics; Beverages, Dietetic Articles, and Condiments; Trade Chemicals, Miscellaneous Compounds used in the Arts, Domestic Economy, &c.; Useful Tables and Memoranda. By Henry Beasley 244

Periscope.

On the Structure of the Dental Tissues of Marsupial Animals, and more especially of the Enamel. By John Tomes 245

On the Action of Amygdaline and Emulsine. By M. Cl. Bernard . . 246

On a special Renal Circulation. By M. Cl. Bernard . . . . . ib.

On the Pathological Changes that follow Section of the Sciatic Nerve. By M. Brown-Séquard 247

On the Influence of Electro-Magnetism on the Contractile Tissue of the Skin. By M. Brown-Séquard 248

On the Regeneration of the Sciatic Nerve . . . . ib.

Case of Supernumerary Cervical Vertebra. By M. Dubreuil . . . . ib.

On the Influence of the Electro-magnetic Current on the Duration of Cadaveric Rigidity. By M. Brown-Séquard 249

Page
On the Movements of Rotation caused by Tearing the Facial Nerve. By M. Brown-Sequard . . . 249
Contributions to the Chemistry of the Urine. By Dr. H Bence Jones, F.R.S., &c. 250
On the Decomposition of the Bile of the Ox. By Dr. Buchner, jun. . . 251
Experiments on the Use of Salt. By M. Plouviez . . . 252
Manifestations of Electricity in a Horse . . . 253
On an Infusory Animalcule allied to the Genus Notommata of Ehrenberg. By John Dalrymple, F.R.C.S. . . . ib.
Chemical Researches on the Soft Occiput of Children By J. Schlossberger . 254
On the Chemistry of Dysentery. By Dr. Oesterlen . . . 255
Caries of the Forehead, Softening of the Brain, and Total Suppuration of the Arachnoid, without any distinctive Symptoms. By Dr. Heinrich, of Mainz . 257
Revaccination in the Prussian Army during 1848 . . . 258
On Exophthalmos after Scarlatina. By M. Deval . . . ib.
Needle found in the Heart . . . 259
On the Treatment of Nævus. By Drs. Keber and Lenoir . . . ib.
On Brachial Ecchymosis in Fracture of the Cervix Humeri. By M Malgaigne 260
On the Removal of the Larynx of a Goose from that of a Child by Tracheotomy. By Dr. Burow . . . ib.
Wound of the Heart—Death only after Twelve Days. By Dr. Bowen . . 261
On Syphilitic Inoculation as a Prophylaxis. By M. Diday . . . ib.
On Dressing Wounds by Occlusion. By M Chassaignac . . . 262
On Maturation of Cataracts. By M. Tavignot . . . 263
On the Statistics of the Mortality from Fractures of the Head By Dr. Fritze . 264
On the Treatment of Phagedænic Chancres by Arsenic. By M. Tessier . 266
On Congenital Cataract. By M. Tavignot . . . 267
On Extra-Uterine Pregnancy. By Dr. Gordon . . . ib.
Prolapsus Uteri during Parturition. By Dr. Harting . . . 268
Case of Complete Inversion and Expulsion of the Uterus terminating favorably. By Dr. Yardley . . . ib.
On the Induction of Premature Labour by the Uterine-Douche. By Dr. Ortwin Naegele . . . 269
On Plugging the Vagina with Vulcanized Caoutchouc. By M. Diday . . ib.
On Diminution of the Size of the Child by Regimen and Venesection. By M. Depaul . . . 270
Rupture of the Uterus, with Escape of the entire Ovum into the Peritoneum, at the full time. By Dr. Stoltz . . . 271
Vagitus Uterinus . . . 272
Mortality from Puerperal Metro-Peritonitis at Paris and Vienna . . . 273
On Sulphuric Acid in Singultus. By Dr. Schneider . . . 274
On the preservation of Leeches. By M. Domine . . . ib.
M. Recamier's Aloetico-febrifugic Elixir . . . ib.
On Nitrate of Silver in Jaundice. By Dr. Peebles . . . 275
On Aconite in Dysentery. By M. Marbot . . . ib.
Lupulin as an Anaphrodisiac. By Dr. Page . . . 276
Phosphorous and Arsenical Pastes for the Destruction of Animals. By M. Duboys ib.
Medical Jurisprudence of Insanity . . . 277
Statistics of the Medical Profession in Prussia . . . 278
On Poisoning by Crustacea. By Dr. Max. Simon . . . ib.
Infanticide.—Retention of Life after long Exposure . . . 279
On the Cessation of the Heart's Sounds as a Sign of Death. By M. Brachet . 280
On the Injuries to which the various Parts of the Body are liable, with especial Reference to their Mortality. By Dr. Schneider . . . ib.
On Suicides in Mecklenburgh. By Dr. Spengler . . . 282
On the Statistics of Suicide in the Grand-Duchy of Baden, 1836-45. By Dr. Magg ib.

Books received for Review . . . 283

THE

BRITISH AND FOREIGN

MEDICO-CHIRURGICAL REVIEW.

JANUARY, 1850.

PART FIRST.

Analytical and Critical Reviews.

Art. I.

1. *Physiology of the Nervous System.* By Robert B. Todd, M. D., F. R. S., Fellow of the Royal College of Physicians, Professor of Physiology and of General and Morbid Anatomy in King's College, London, &c. &c. (From the Cyclopedia of Anatomy and Physiology.)—*London*, 1847. Royal 8vo, pp. 72.
2. *The Lumleian Lectures for* 1849.—*On the Pathology and Treatment of Convulsive Diseases. Delivered at the Royal College of Physicians, London.* By Robert B. Todd, M. D., F. R. S., &c. &c. (From the Medical Gazette.)
3. *The Gulstonian Lectures for* 1849.—*On the Nervous System. Delivered at the Royal College of Physicians, London.* By W. W. Gull, M. D., Fellow of the College, and Fullerian Professor of Physiology at the Royal Institution of Great Britain, &c. &c. (From the Medical Times.)

It has been well said of political constitutions, that all such as have been permanent and successful in their action have not been made, but have grown. The same is true, we believe, of almost every system of opinions in science or philosophy that has stood the test of time. Of all the systems that have been made, scarcely one has survived in its totality; because in almost every instance the system-maker has been unduly biassed by some discovery of his own, or by the strong perception of some truth having a limited degree of generality, on which he has founded a scheme for universal application. And thus one system has been superseded by another, each containing a certain amount of truth, but each erroneous in using that truth as its sole foundation; just as every political constitution that has been framed, has been built upon some principle to which all good government must have regard, but has failed from the too exclusive operation which this has been permitted to exert. But as there has been scarcely a system that has not contained some element of truth, so there have been few which have not exerted some influence in the growth of our present set of opinions; just as the successive forms of government to which the people of this country have been subjected,—the absolutely monarchial, the oligarchical, the democratical, and all their intervening gradations,—have left their impress on our political condition, and have terminated in leaving us that glorious Constitution, whose greatest merit is its progressiveness, its power of adaptation to the ever-changing wants of a people whose condition is not the same for any two successive years.

We cannot take a better model than this, for the building up of our Philosophy of Medicine. Experience, indeed, has long since led all really sagacious thinkers to the conclusion, that no constructed systems can possess any real value; and there has been of late years very little disposition to bring forward any, the principle of growth having been generally recognised as that by which alone they can acquire any permanent hold over public opinion. But there are many subordinate doctrines, in regard to which the same caution is required. There is at present more tendency to build up partial schemes than general systems; and with regard to most of these we believe it will be found that the first attempts are rarely successful, and that they need to be modified by subsequent consideration before they can be rendered true expressions of the facts they are intended to embrace, or can harmoniously assimilate with the other portions of the fabric to whose growth they should contribute. And thus it has happened that the true value of a discovery has seldom been rightly estimated at the time, either by the discoverer himself, or by those who have accepted it. The more striking and novel aspect of it of course attract attention most strongly in the first instance; but it not unfrequently turns out that these are the very points in which it is most open to attack; so that it would seem in danger of entire demolition, if it were not for some latent truth which subsequently developes itself in a manner little anticipated by the original discoverer, giving to the whole subject a new aspect, and to the discovery itself of a far higher, and more permanent value. Hence it may happen that, without any sudden or striking change, the progress of *opinion* may be great; so that it is desirable from time to time to take a fresh survey of our position, and to ascertain if our former landmarks still hold their accustomed places.

This it is our purpose to do at the present time, in regard to some of those fundamental principles of the Physiology and Pathology of the Nervous System, which affect our view of its diseases. For it seems to us that we are at present in a position to form a much truer estimate of the value of certain discoveries which were announced, and of systems which were promulgated, some ten or twelve years since, than we were when they were first made public. Their novelty was then seducing to some, whilst it rendered them repulsive to others. Many of those best acquainted with the phenomena of the nervous system, saw in them the explanation of many things for which they had previously been at a loss to account: and were consequently disposed to slur over the difficulties and objections which prevented others, not less qualified to appreciate them, from treating them with that consideration which they certainly merited. Our general ideas of nervous agency have bocome more comprehensive and definite in the interval. The progress of anatomical and experimental research has revealed a number of new facts, which have an important bearing upon the questions at issue. And last, but not least, we have been put in possession of the views promulgated more than half a century ago by two men, Unzer and Prochaska, who were remarkable for their insight into the laws of nervous action; who anticipated, in many particulars, the results of subsequent discovery; and whose doctrines, therefore, are well deserving of respectful consideration.

We shall, perhaps, best introduce the discussion on which we desire to enter, by the following quotation from Dr. Todd's article, which will put some of the most important questions at issue fairly before our readers.

"Having shown that the spinal cord is concerned in voluntary motions and in sensation (mental nervous actions), and in certain reflex actions, as well as in certain organic functions (physical nervous actions), it is important to ascertain what is the mechanism by which these various actions take place.

"The most convenient way to discuss this point will be to examine into the value of certain hypotheses which have been framed to explain it. We shall find it necessary in this discussion to keep before us two propositions, in favour of which sufficient evidence has already been adduced. These are,—1, That the brain or some part of it is essential to the production of mental nervous actions; in other words, that acts of volition and sensation cannot take place without the brain; and, 2, That the vesicular is the truly dynamic nervous matter, that which is essential to and the source of the development of all nervous power.

"The first hypothesis which we shall notice is one of so much ingenuity, that one is tempted thereby to adopt it, and would gladly do so if it were found sufficient to explain the phenomena, and if it were consistent with that simplicity which characterises the mechanism of the body. It originated with Dr. Marshall Hall, and has been advocated by him with great zeal and ability; it may be distinguished as the hypothesis of an *excito-motory system of nerves*, and *of a true spinal cord*, the centre of all physical nervous actions.

"This hypothesis may be stated as follows.

"The various muscles and sentient surfaces of the body are connected with the brain by nerve-fibres, which pass from one to the other. Those fibres destined for or proceeding from the trunk to the brain pass along the spinal cord, so that that organ is in great part no more than a bundle of nerve fibres going to and from the brain. These fibres are specially for sensation and volition—*sensori-volitional*.

But, in addition to these, there is, according to Dr. Hall, another class of fibres proper to the spinal cord and to its intracranial continuation, which form a connexion with the grey matter of the cord. Of these fibres, some are afferent or incident, others efferent or reflex, and these two kinds have an immediate but unknown relation to each other, so that each afferent nerve has its proper efferent one, the former being excitor, the latter motor. The aggregate of these fibres, together with the grey matter, constitutes the true spinal cord of Dr. Hall, which is not limited to the spinal canal, but passes up into the cranium as far as the crura cerebri. (Its extent, indeed, is much the same as that which has been assigned by Prochaska to his sensorium commune.) These fibres are quite independent of those of sensation and volition, and of the sensorium commune, using that term as indicating the centre of intellectual actions. Although bound up with sensitive and mortor fibres, they are not affected by them, and they maintain their separate course in the nerves, as well as in the centres.

"2. A second hypothesis is that which accords with the views of Muller and many other physiologists of the present day, and likewise probably with those of Whytt. It assumes that the fibres of sensation and volition proceed to and from some part or parts of the intracranial nervous mass,—that every nerve-fibre in the body is continued into the brain. Those which are distributed to the trunk and extremities pass along the spinal cord, separating from it with the various roots of the nerves, and in their course within the spine mingling more or less with the vesicular matter of the cord. There are, according to this hypothesis, no other fibres but these (save the commissural), and they are sufficient to manifest the physical as well as the mental acts. Nerves of sensation are capable of exciting nerves of motion which are in their vicinity; and they may produce this effect even when the spinal cord has been severed from the brain, for their relation to the grey matter of the cord is such, that their state of excitement is readily conveyed to it.

"3. According to a third hypothesis, it is assumed that all the spinal and encephalic nerves, of whatever function, are implanted in the grey matter of the segments of the cerebro-spinal centre with which they are severally connected, and do not pass beyond them. The several segments of the cerebro-spinal axis are connected with each other through the continuity of the grey matter from one to another, and through the medium of commissural fibres which pass between them. Through these means, motor or sensitive impulses may be propagated from segment to segment; and a stimulus conveyed to any segment from the periphery may either simultaneously affect the brain and cause a sensation, or it may be reflected upon the motor nerves of that segment and stimulate their muscles to contract. Or both these effects may take place at the same moment, as a result of one and the same stimulus. According to this hypothesis, each segment of the cord, so long as it retains its proper commissural connexion with the brain (by commissural fibres and continuous grey matter), is part and parcel of the centre of volition as well as of that of sensation, and the mind is as directly associated with each segment of the cord as it is with any portion of the encephalon. Let that commissural connexion be dissolved, and the mind will immediately loose its hold upon the cord; but the various segments of that organ mav nevertheless still be acted upon by physical impulses, and may still continue to evolve the nervous force in connexion with the natural changes which may take place within.

"I am not aware that this view of the mechanism of the various actions of the nervous system had been ever distinctly enunciated, before it had been stated by Mr. Bowman and myself in our work on the 'Physiological anatomy and Physiology of Man,' in 1845. There is nothing, however, in this hypothesis at variance or inconsistent with the views of Prochaska; for this physiologist seems to have held the opinion, that the nerves are implanted in the segment of the cerebro-spinal axis into which they sink, and do not pass beyond it." (pp. 38-44.)

That we have been ourselves among the upholders of Dr. M. Hall's "distinct system," we are not ashamed to acknowledge. It seemed to offer a very rational solution to the phenomena which it was designed to explain; for when physiologists were accustomed to regard all motor power as proceeding from the brain, the demonstration that the spinal cord is a distinct centre of action, coupled with Sir C. Bell's admitted proof of the structural distinctness of the motor and sensitive nerves, and of their central terminations, seemed to render it highly probable that functions so distinct as the sensori-volitional and the reflex, and central connexions so distinct as the cerebral and the spinal, would require separate nerve-fibres as the instruments of the transmission of their respective agencies. And when Mr. Grainger showed that each root of every spinal nerve has a double termination, one fasciculus of fibres passing into the grey substance of the cord, and another apparently becoming continuous with its longitudinal fibrous columns; and when, in like manner, Dr. Carpenter's application of Mr. Newport's anatomy of the articulata, showed that one fasciculus of each of their roots terminated in a ganglion of reflex action, whilst another went on to the cephalic ganglia (whose cerebral character was too readily assumed);—it was felt by many physiologists, in this country more particularly, including Dr. Todd, that a case of strong probability had been made out in favour of Dr. M. Hall's hypothesis. It is to be remembered that anatomists had been previously in the habit of regarding the spinal cord as little else than a bundle of nerves passing down from the brain; and of the continuity of the roots of the spinal nerves with the longitudinal columns of the cord, and, through the various strands of the medulla oblongata, with the fibrous substance of the brain, no doubt had been entertained, or at least expressed. Moreover, the relative functions of the grey and white matter not having been clearly determined, and no positive ideas of the essential nature of a ganglionic centre having been then formed, it had not been understood that the spinal cord must, in virtue of its grey tract, be something else than a bundle of nerves. So that when Mr. Grainger demonstrated the termination of some of the roots of the spinal nerves in that grey substance, and brought together many facts which indicated that the grey substance wherever it occurs is the true centre of nervous power, the existence of a double set of fibres, one cerebral and the other spinal, in each root, seemed to have a strong claim to be admitted as an established truth.

We are not aware that it is necessary to accumulate any other arguments in support of this hypothesis. Those of Dr. M. Hall himself simply go to establish the position, which no one now thinks of disputing, that the spinal cord is a centre of action altogether distinct from the cerebrum and independent of it; and that, besides the *voluntary* actions which receive their stimulus from the brain, there is another class of movements, which is called forth by stimuli applied to the peripheral extremities of the afferent nerves and *reflected* through the spinal cord, without any participation of the will and even in opposition to it, and without necessarily involving sensation. And the first question is, whether these facts can be satisfactorily explained upon his hypothesis of a "distinct system," fortified by the anatomical statements adduced in its favour by those who adopted it.

The main difficulty in its reception appears to us to be the structure of the spinal cord; which, as now understood, seems unfavorable to the idea, formerly admitted almost as a matter of course, that there is such a direct communication between the cerebrum and the roots of the spinal nerves, as would serve not merely to convey upwards all the sensorial impressions received through their posterior roots, but to bring downwards all the motor impulses which originate in an effort of the will, and which take effect through their anterior roots. For although many anatomists still hold to the belief that some of the fibres in each nerve-root are continuous with the longitudinal fibres of the cord, which our own investigations seem to justify,—yet this by no means proves that they pass along the cord for any considerable portion of its length, far less that they pass upwards continuously to the grey matter of the cerebrum. And there is a general agreement in the assertion, that the great bulk of the fibres which constitute the roots of the nerves of any segment of the spinal centre, are implanted in the grey matter of that segment, and do not pass beyond it. The amount of white or fibrous matter in any portion of the cord, ought, if this hypothesis were true, to be greatest at its summit, and to diminish gradually downwards, in accordance with the successive transmission of the fibres into the roots of the spinal nerves. But this is by no means the case; for the amount of white substance is greatest in the portions of the cord which are most thickened by ganglionic enlargements; being thus much greater in the lower than in the upper part of the cervical region, and greater in the lumbar than in the middle dorsal region. This has been lately established decisively by the observations of Volkmann.*

He cut four pieces of a horse's spinal cord, of precisely the same length, from below the second, eighth, nineteenth, and thirtieth pairs of nerves; and found that their respective weights were 219, 293, 163, and 281 grains. The relative proportions of the grey and white substances appeared to vary in nearly an equal ratio; for upon measuring the areæ of the grey matter in the cut surfaces, they were found to be respectively 13, 28, 11, and 25 square lines; whilst the areæ of the white matter were 109, 142, 89, and 121 square lines. Thus we see that the white substance of the upper cervical region would not suffice to convey upwards the fibrous strands of the lumbar, much less those of all the intervening nerves in addition. Further, it was estimated by Volkmann that the whole area of the spinal cord of a serpent at its upper part, is not more than *one eleventh* part of the united areæ of the 221 pairs of spinal nerves given off from it; and here, too, we may remark, we find no such gradual decrease in the size of the cord, from its cerebral to its caudal extremity, as would be expected if the cerebral strands were giving off fasciculi to each one of these 221 pairs of nerves; on the contrary, the spinal cord of serpents is remarkable for its uniformity of dimension through its whole length, the absence of limbs preventing any necessity for an increase in the amount of grey matter in any part, and the fibrous columns presenting a similar equality in bulk. It is pointed out, too, by Dr. Todd, that the only channel by which the will can influence the spinal cord being (as generally admitted) through the fibres of the anterior pyramids, it is highly improbable that these fibres should form the aggregate of those by which the will can exert its influence upon the spinal nerves; the whole of them on *both* sides, collected together, scarcely equalling in bulk the anterior portion of *one* of the antero-lateral columns of the spinal cord.

From these facts we seem justified in inferring, that the spinal cord is the *chief* centre for the roots of the spinal nerves; that a considerable portion of the white strands of the cord is composed of fibres which are passing a little way upwards or downwards, so as to reach segments of its ganglionic centre a few removes from the point at which the nerves join the cord, just as, according to Mr. Newport, the fibres of the ganglionic column may be seen to do in the articulata; and that if any of the fibrous strands pass continuously between the roots of the nerves and the encephalic centres, the proportion is so small that it cannot be regarded as adequate to supply the demands of Dr. M. Hall's cerebral or sensori-volitional system. We are not disposed, however, to deny the passage of some such continuous fibres; on the contrary, it seems to us that the analogy of the fibrous tract in the articulata is strongly in favour of their existence, and that the admission of them as passing, not to the cerebrum, but to the sensory ganglia, and as forming, not a system distinct from the spinal, but a portion of that automatic system of which the spinal is itself but a part, is almost necessary to our explanation of the phenomena which we seek to comprehend, and at the same time will convert all the arguments in favour of the "distinct system," founded upon a somewhat erroneous interpretation of the anatomy and physiology of the articulata, into arguments in support of the simpler views which we shall endeavour to establish.

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* Wagner's Handwörterbuch der Physiologie, Art. *Nervenphysiologie.*

Another difficulty which we may notice as involved in the doctrine of the "distinct system," has reference to the emotional actions. These were considered by Dr. M. Hall to take place through the instrumentality of the "true spinal" fibres; but reasons were urged by Dr. Carpenter against this doctrine, which rested solely upon the fact that emotional actions may take place in parts which are paralysed to the will. Arguing from the fact that the emotions can only be excited through the sensations, and chiefly through those of the special kind, Dr. Carpenter considered that we must recognise the existence of a third class of fibres, having their special centres in the ganglia of sense, and independent alike of the cerebral and the spinal. Dr. Todd recognises the necessity of this extension of the doctrine of a distinct system, if it be adopted at all, and makes the following just and pertinent remarks upon it.

> "It is difficult to admit the existence of three orders of fibres in each muscle, which, to be effective, must have the same relation to the elements of the muscle. It is impossible to imagine how each order of fibre should comport itself with reference to the other two, so that their actions may not interfere. Nor can any one fail to perceive that the emotional fibres must be infinitely less frequently employed than the others, and in some individuals so seldom called into action as to be greatly exposed to the risk of atrophy for want of use." (p. 46.)

With regard to the second hypothesis, there is no necessity for any lengthened argument; since the facts already adduced clearly prove that the great mass of the fibres, of which the roots of the spinal nerves are composed, *cannot* pass on to the brain.

The third hypothesis has the recommendation of being much more in accordance than either of the preceding with the anatomy of the spinal cord, as we now understand it; since it regards each segment as the centre of its own proper nerves, all centripetal impressions being received in the first instance by it, and all motor impulses finally proceeding from it; whilst by the connexions established through commissural strands between the different segments of the cord itself, and between the cord on the one hand and the cerebrum and cerebellum on the other, the impressions first conveyed to the cord are carried on to the sensorium so as to produce sensations, whilst motor impulses originating in the cerebrum are brought to act upon the muscles, by being directed to the segment of the cord whence their nerves proceed. This hypothesis has the great merit of simplicity; for it assumes that all muscular movements, whether reflex, emotional, or voluntary, are immediately called into action by the same efferent fibres; and that the very same afferent or excitor fibres are the channels of the transmission of stimuli which give rise to reflex actions through the spinal cord, and of impressions that become sensations when transmitted to the sensorium. The mechanism of reflex action, on this hypothesis, is precisely the same as on Dr. M. Hall's; but the mechanism of sensation and of voluntary motion are at first sight more complex. These phenomena are thus explained by Dr. Todd:

> "The mechanism of a voluntary action in parts suppled by spinal nerves would be, according to this hypothesis, as follows:—The impulse of volition, excited primarily in the brain, acts at the same time upon the grey matter of the cord (its

anterior horn), and through it upon the anterior roots of the nerves implanted in it. This grey matter, in virtue of its association with the brain by means of the anterior pyramids, becomes part and parcel of the organ of the will, and therefore as distinctly amenable to acts of the mind as that portion which is contained within the cranium. If we destroy the commissural connexion with the brain through the pyramidal fibres, the spinal cord ceases to take part in mental nervous actions; or, if that connexion be only partially destroyed, that portion of the cord which the injured fibres had associated with the brain is no longer influenced by the mind. Again, if the seat of volition in the brain be diseased, the cord, or part of it, participates in the effects of the disease as far as regards voluntary actions. That it is not too much to ascribe such power to the pyramidal fibres appears reasonable, if we consider how the fibres of the corpus callosum, and perhaps other transverse commissures, so connect the hemispheres and other parts of the brain, that the separate divisions of a double organ act harmoniously, so as to excite but a single train of thought, or, conversely, that two impressions from one and the same source on a double sentient organ are perceived as single by the mind.

An objection to this explanation will readily be raised—namely, that the excitation of the anterior horn of the grey matter, in the way stated, does not explain the remarkable power which the will has of *limiting* its action to one or two, or a particular class of muscles. To this, however, it may be replied, that there can be no reason for denying to the mind the faculty of concentrating its actions upon a particular series of the elementary parts of the vesicular matter, or even upon one or more vesicles, if we admit that it can direct its influence to one or more individual fibres, as the advocates of the first and second hypotheses do. If, indeed, we admit the one, we must admit the other; for, whether the primary excitation of a fibre take place in the encephalon or in the spinal cord, the part first affected must probably be one or more vesicles of grey matter.

"The series of changes which would develope a sensation admits of the following explanation, according to this hypothesis.—A stimulus applied to some part of the trunk or extremities is propagated by the sensitive nerves to the *posterior* horn of the grey matter of the spinal cord, and from the junction of this part with the brain, either through the direct continuity of the vesicular matter of the cord with that of the centre of sensation, by the olivary column, or through longitudinal commissural fibres, analogous to or even forming a part of the anterior pyramids, this is simultaneously affected. To this, likewise, it will be objected that the limitation of sensation is not sufficiently explained. But the reply is obvious; the *intensity* and *kind* of sensation depend upon the nature of the primary stimulus at the surface, the *extent* upon the number of fibres there stimulated. Wherever these fibres form their proper organic connexion with the vesicular matter, that matter will participate in their change to an extent proportionate to the number of fibres stimulated, and with an intensity commensurate with the force of the primary stimulus. It is not necessary to the development of sensation, that the fibre stimulated should be implanted directly in the brain; if it be connected with this centre through the medium of vesicular matter or through commissural fibres, all the conditions necessary for the development and propagation of nervous force would appear to be fulfilled. It must not be supposed, however, that, in making this statement, we mean to assign the spinal cord to be the *seat* of sensation; all we assert is, that the posterior horn of the grey matter, as being the part in which the sensitive roots are implanted, is the seat of physical change excited by the stimulus applied to the sensitive fibres, which change must be *perceived* by the mind before true sensation can be produced. In fine, by the union of the posterior horns of the spinal grey matter with the vesicular matter of the brain, they become a part of the centre of sensation so long as that union is unimpaired." (p. 47.)

Now we are of opinion that there is evidence that the mechanism of voluntary movement is very much what Dr. Todd represents it to be; and that the cerebrum does *not* directly act upon the muscles, but exerts its influence upon that other portion of the nervous centres from which their nerves immediately proceed. This evidence we shall presently consider. But we cannot find any such indications of an intermediate process in the case of sensation; on the contrary, everything tends towards the conviction in our minds, that the reception of a sensation by the sensorium is a process as direct as the reception of a physical stimulus (as Dr. Todd terms it) by the spinal cord; and, moreover, there is to us ample proof that there is a class of actions as purely "reflex" as those of the spinal cord, in which sensation is a necessary participant. This was long ago seen by Unzer and Prochaska, who very wisely, we think, made their "sensorium commune" include the centres of sensation; and who drew a distinction between reflex actions *with* sensation, and reflex actions *without* sensation, of which not only Dr. M. Hall, but also Dr. Todd, appears to us to have lost sight. As a further elucidation of the nature of Dr. Todd's hypothesis, we shall quote the following passage from his second Lumleian lecture.

> "The brain and spinal cord (and I beg to state that I use these terms to signify respectively the intra-cranial and intra-spinal nervous mass) as the great centres of the nervous system—the great nervous battery of the body—show distinctly a division into two portions: one in which nerves are implanted; the other which has no immediate connexion with nerves, and communicates with them only through the medium of the former part. Thus, in the brain, the hemispheres, the corpora striata, the optic thalamus, the tubercula quadrigemina, and the large mass of vesicular matter connected with them and the cerebellum, have no immediate connexion with nerves—no nerve is implanted in any one of these centres. The functions of these centres are all of a mental nature,—either the development of intellectual change, or the exercise of volition, or perception, or emotion, or the balancing and co-ordinating of movements,—and they exercise a control over the various segments of that portion of the cerebro-spinal centre in which nerves are implanted, through commissural fibres, which pass from them to the various segments of that centre. That part of the cerebro-spinal axis in which nerves are implanted—which was fully recognised by the distinguished Prochaska, and by him designated the *sensorium commune*—this part is in itself incapable of originating any nervous action, except in virtue of some physical change in it; it cannot develope any mental action except in obedience to a stimulus from some of those centres already mentioned as belonging to the encephalon. This part extends from the upper part of the crura cerebri to the extremity of the spinal cord, and all its actions are physical, unless when excited and guided by any of the encephalic centres. It is the centre of all those reflex actions which take place through the spinal or encephalic nerves." (Lecture ii, p. 726.)

We must own that we cannot understand Dr. Todd's anatomy. He seems to us to have altogether forgotten the existence of the nerves of special sense, in limiting the nerve-receiving portion of the cerebro-spinal axis to the parts below the crura cerebri, and in affirming that the thalami optici and the corpora quadrigemina "have no immediate connexion with nerves." What, again, does he do with the olfactive ganglia? Do they belong to the encephalic or spinal division of the nervous centres?

Dr. Todd's hypothesis, then, seems to us to be imperfect, in so far as it draws the line between the encephalon and the spinal cord in the wrong place; assigning to the former, as part of the *cerebral* apparatus, the sensorial ganglia, and thus improperly limiting the centres of automatic action. We believe that if he had more attentively considered the relations of the different parts of the encephalon by the light of comparative anatomy, and had taken a somewhat wider survey of physiological phenomena, he would have perceived that the sensory ganglia at the summit of the spinal cord are really much more an appurtenance of the latter than they are of the cerebrum; for, in the lower vertebrata, the cerebrum has no direct connexion either with the olfactive, optic, or auditory ganglia; whilst in the invertebrata these ganglia are present, and are in a relation just as close to the ganglia of the trunk, as the latter are to each other, although no cerebrum exist. Still we regard this as rather an error of detail on Dr. Todd's part, which has arisen, perhaps, from a too exclusive attention to human anatomy: the fundamental principle of his hypothesis we believe to be perfectly just; and the views of the constitution and actions of the nervous centres which we have now to propound, will be based on a full recognition of it. In fact, it may be regarded as the result of the combination of Dr. Todd's doctrine of the *singleness* of the root-fibres of the spinal nerves, and of the derivation of the power of the motor nerves from the spinal cord alone, with the view of the relative offices of the several divisions of the encephalic centres which was put forth in the pages of one of our predecessors, (Brit. and For. Med. Rev., Oct. 1846;) and, by means of this combination, we find ourselves brought back, with the most singular exactness, to the main positions assumed by Unzer and Prochaska. In fact, we may consider ourselves as expounding *their* doctrines, with the additional light derived from our improved knowledge of anatomy, both human and comparative, and of the *modus operandi* of the nervous system in general.

The fundamental or essential part of the nervous system, in all animals, is that which responds *automatically* to external stimuli;—that is, the system of *afferent* nerves, by which the influence of stimuli is conveyed from the periphery to the centres; the system of ganglia by which it is received and reflected, without any exertion of intelligence or will; and the system of *efferent* nerves, by which the motor impulse thus called into play is conveyed to the muscles. The automatic action is essentially the same, whether it involves the excitement of sensation, or whether it is performed without any consciousness whatever; the difference depending merely upon the conveyance of the stimulus to a part of the ganglionic centres which is subservient to consciousness, or to the parts which have no such relation. *The nervous system of the articulated animal affords the type of a purely automatic apparatus.* It consists of a series of ganglia connected by longitudinal cords, which pass along the ventral surface of the body; and of a pair of ganglia seated in the head, but connected with the highest ganglion of the ventral series by fibrous cords of precisely similar characters to those which pass between the latter. Each ganglion has nerve-trunks especially connected with itself; those of the ventral cord being distributed to the muscular system and to the surface of the body; whilst those of the cephalic ganglia chiefly serve to connect them with the organs of sense. But the connexions of the nerve-trunks are not exclusively limited to the ganglia of their own segments; for, according to the statement of Mr. Newport, some of their fibres pass along the cord to ganglia above or below, thus forming part of the fibrous strands which connect the ventral ganglia with each other; whilst others are directly connected with the cephalic ganglia, by means of the fibrous column which overlies the ganglionic. This last assertion is doubted by Dr. Todd; but, as it seems to us, upon no sufficient grounds. It is not disputed that the cephalic ganglia are the centres of *sensation*, and that the optic nerves pass directly into them; why, then, should not *other* sensory nerves pass into them with equal directness? Morever, if some of the fibres of the nerve-roots pass along the interval between one, two, or more segments, to reach remoter ganglia of the ventral cord, why should not others pass along its entire length, to reach the cephalic ganglia? It is distinctly affirmed by Mr. Newport, that he has traced fasciculi of nerve-fibres passing continuously between the cephalic ganglia and the roots of the nerves of the trunk, without entering any other ganglion; and until this assertion has been disproved, we think that Mr. Newport's well-known accuracy ought to serve as a warrant for its reception.

But its admission will not by any means involve the doctrine of the "distinct system;" on the contrary, the anatomical study of the nervous system of the typical articulata, and the careful analysis of their actions, lead us to the conclusion that the *whole* apparatus is of an *automatic* character, answering precisely to the "sensorium commune," of Prochaska; and that *all* its actions may be designated as *reflex*, being performed in direct respondence to external, or, as Dr. Todd terms them, "physical" stimuli, without any interference or modification (except in those somewhat aberrant forms which most nearly approximate to vertebrata) from intelligence or will. The movements of each individual segment, called into action by external impressions, are immediately dependent upon its own ganglion; but those of the several segments are associated together, partly by the commissural fibres that pass between the ganglia, and in part, perhaps, by the connexion of each nerve-root with the ganglia above and below; and the guidance and direction of the whole train is effected by the cephalic ganglia, which are called into play by the impressions made on the proper sensory nerves, and which exert their influence by means of the commissural fibres that pass down from them to the ganglia of the central cord. Such we believe to be the mechanism, not only of the ordinary locomotive actions of these animals, but of all those wonderful operations which we are accustomed to designate as *instinctive.* The former chiefly originate in impressions made on the ventral ganglia themselves; and only need the control and direction which the cephalic ganglia exercise over them, in virtue of the sensations received by the latter. But the "instinctive" operations would seem to be primarily dependent upon sensations, some of them derived from external impressions, but others originating in the body itself; and we regard them, therefore, as belonging to Prochaska's category of reflex actions involving sensation; although they seem to have been considered by Unzer as independent even of sensation. The wonderfully *adaptive* character of these actions is no more reason for considering them as otherwise than automatic, than it is for regarding the ordinary reflex actions as dependent upon the designing will of the individual that performs them; what, for example, can be more nicely adjusted for a special purpose, than the various muscular movements concerned in the act of *sneezing*, which may be regarded as a very good example of the reflex movements with sensation? The close relation, in fact, between sneezing, coughing, and the ordinary movements of respiration, which are all equally *automatic*,—although the first is certainly dependent upon the excitement of a sensation, and the second is perhaps so, whilst the latter are merely (in Dr. M. Hall's phrase) excito-motor,—strongly indicates the unity of the apparatus by which they are carried into effect; and should of itself lead us to question the correctness of Dr. Todd's complete separation of the sensorial apparatus from the spinal.

Interpreting the anatomy of vertebrated animals, then, by that of the articulated, we should view the spinal cord, the medulla oblongata, and the whole series of ganglionic centres connected with the nerves of sensation, and lying along the base of the skull in man, as far forwards as the olfactive ganglia, as constituting the apparatus of automatic action; and should look upon the cerebrum and cerebellum as organs superadded to this for purposes peculiar to vertebrata, making use of it as their instrument, and not having any communication either with organs of sense or with the muscular system, except through its intermediation. The proper *cerebral* portion of the nervous system, in our apprehension, consists of the superficial layer of vesicular matter, and of the fibres which connect the different parts of this with each other, thus constituting what Mr. Solly terms the "hemispheric ganglia;" to the exclusion of the thalami optici, corpora striata, and corpora quadrigemina. The hemispheric ganglia are connected with the automatic apparatus by that great series of fibrous communications which pass in a more or less radiating manner from the corpora striata, thalami optici, corpora quadrigemina, and other parts of the summit of the automatic apparatus, towards the vesicular matter of the hemispheres; and here, as it appears to us, rather than in the pyramids, are the commissures by which the cerebrum is brought into connexion with the automatic centres. The pyramids, together with the other fibrous strands of the medulla oblongata, are obviously the homologues of the diverging cords that pass around the œsophagus of articulata, to connect the cephalic or sensory ganglia with the first ganglion of the ventral cord; and we cannot see any reason for regarding them as having any other function in vertebrated animals, than in like manner to connect the sensorial ganglia contained in their cranium with the spinal cord, which answers to the ventral series of ganglia in the articulata. Interpreting the structure of the spinal cord by the connexions distinguishable amongst the latter, we should be disposed to regard each pair of spinal nerves, with Dr. Todd, as being especially connected with its own segment; but as probably communicating with other segments, above and below, by fibres which enter into the composition of the fibrous columns of the cord; and as having a direct communication also, by continuous fibres, with the sensory ganglia lodged within the cranium. Until such communication shall be disproved, we must regard all analogy as in its favour; for we certainly have no reason to suppose, from any other source of information, that the communication between an organ or surface, possessed of sensibility, and the sensorial centres, is otherwise than *direct*. But we should no more regard the fibres that pass on to the cephalic ganglia as entitled to rank as a "distinct system," than we should consider the fibres that may pass on to segments of the spinal cord, above or below those with which their trunks are mainly connected, as having claim to such a designation. They appear to us to constitute a part of one and the same system of automatic action; the operations of which will necessarily involve sensation, or will be essentially independent of it (although usually accompanied by it), according as they take place through the instrumentality of the upper or sensorial, or the lower or non-sensorial, portion of the apparatus.

We do not, however, affirm that a continuity of *fibrous* structure is necessary for the transmission of nervous agency, or, to use Dr. Todd's more correct phrase, for the excitement of nervous polarity. On the contrary, we agree with Dr. Todd that there is adequate evidence that the vesicular substance may be subservient to this purpose. For it has been established by the experiments of Stilling and Van Deen, that both sensory and motor impressions can be communicated from one portion of the spinal cord to another, when sections are made in such a manner as to leave the two portions connected only by grey substance. And in no other way can we account for the *radiation* of impressions, in certain states of exalted activity of the automatic centres; a sensorial impression, for example, in a hysterical subject, spreading from the nerve which conveyed it to many others, so that the slightest touch produces a painful sensation over a large surface; and in like manner, the slightest irritation, in the tetanic state, whether that state be natural or artificially induced by strychnine, serving to throw a large number of muscles into powerful and simultaneous contraction. Still we think it probable that all the *ordinary* automatic movements, especially those most directly connected with the maintenance of the organic functions, *are* produced through the instrumentality of a direct fibrous communication between the part to which the stimulus is applied, the ganglionic centre, and the muscles thrown into contraction. For such direct communication is evident enough in the case of the respiratory and pharyngeal centres in the invertebrata; each of which seems to be the immediate instrument of all the movements for which it is specially provided. And there is no reason why the lodgement of these centres in the medulla oblongata of vertebrated animals should interfere with their directness of connexion, the one with the respiratory apparatus, and the other with that of deglutition. On the contrary, we think that in the fact of the supply of many of the muscles of the lower jaw by *two* motor nerves, the portio dura seeming to be the instrument of their respiratory and expressional movements, and the fifth pair of those of mastication and deglutition; there is an indication that these centres remain distinct, and that their connexion with the muscles, as well as with the sensory surfaces, is by fibres of their own.

Referring to the article to which we have already alluded, for various proofs of the existence of a class of actions in man, as purely *reflex* as those to which the term is ordinarily applied, but involving the excitement of *sensation* as a necessary link in the chain of operations,—a class to which we do not perceive that Dr. Todd makes any reference, and the absence of any comprehension of which seems to us to be the essential defect of his physiological system,—we have now to inquire into the relation of the cerebral or hemispheric ganglia to the sensory and motor apparatus. That they are not the seat of sensation, and have no participation in purely automatic actions, we believe that there is no occasion to argue; since most comparative anatomists regard the sensorium as seated in the ganglionic centres of the sensory nerves. On the other hand, it is generally admitted that they are the instruments by which ideas are formed, by which reasoning processes are carried on, and by which the will exerts its power. We should expect, then, that they would derive their first stimulus to action from the sensorial centres, which would communicate to them the influence of the sensations therein formed; and anatomy furnishes, as we have already pointed out, the required fibrous connexions. We have dissented from Dr. Todd's notion that the mechanism of *sensation* involves a *double* ganglionic action; but we think that this double action is clear enough in regard to *perception*, or the formation of a notion or idea in regard to the object of sensation, of which the excitement of sensation in the sensorial ganglia is the first stage, this sensation being itself the stimulus to the secondary action of the cerebral ganglia. And in like manner, as we shall now proceed to show, in the performance of a voluntary movement; that is, a movement *designed* by the individual to carry into effect a given purpose: the cerebrum does not act directly upon the muscular system, but uses the automatic apparatus as its instrument.

Every one who has attentively considered the nature of what we are accustomed to call *voluntary* action, has been struck with the fact that the will simply determines the *result*, not the special movements by which it is brought about. If it were otherwise, we should be dependent upon our anatomical knowledge for our power of performing the simplest movements of the body. Again, there are very few cases in which we can single out any individual muscle, and put it into action independently of others: the cases in which we *can* do so are those in which a single muscle is concerned in producing the result, as in the elevation of the eyelids; and we then really single out the muscle and cause it to contract, by "willing" the result. Thus, then, however startling the position may at first appear, we have a right to affirm that the will cannot exert any direct or immediate power over the muscles; but that its determinations are carried into effect through the intermediation of some mechanism, which, without any further effort on our own parts, selects and combines the particular muscles whose contractions are requisite to produce the desired movement. This conclusion, at which we arrive by an analysis of our own consciousness, is in perfect harmony with the inferences which we should draw from the anatomical relations of the cerebrum; for we have found strong reason to believe that the cerebrum does not directly transmit any fibres to the muscular system, but that its operations are exerted through those fibres, which pass between the surface of the hemispheres and the chain of ganglionic centres at the base of the cranium that constitutes the summit of the automatic apparatus. And thus, as the sensorium *plays* (so to speak) upon the cerebrum, sending to it sensations in order to call forth its activity as the instrument of the purely mental operations, so does the cerebrum, in its turn, *play* downwards upon the motor portion of the automatic apparatus, sending it volitional impulses, which excite its motorial activity. Thus, then, even what we are accustomed to consider our *voluntary* movements are in their immediate and essential nature *automatic;* their peculiar character being, that whereas the ordinary automatic movements are excited by *external* stimuli, impressional or sensational, conveyed by the afferent nerves, the volitional movements are excited by a stimulus proceeding from the cerebrum, and conveyed along what Reil, with great sagacity, termed the nerves of the *internal* senses.

Our idea of the mechanism of voluntary movement, then, is essentially the same with that of Dr. Todd; the chief difference being that *we* regard the automatic apparatus as including that series of sensory ganglia which *he* considers to be an appendage to the cerebrum; so that the real commissures between the cerebral and the automatic apparatus are, in *our* apprehension, the fibres of the white substance of the brain, radiating from the thalami optici, the corpora striata, &c.; whilst in *his* they are the strands of the medulla oblongata, especially the anterior pyramids. Now we cannot but think that, if Dr. Todd will bear in mind the disproportion between the amount of radiating fibres in the cerebrum, and the size of the pyramidal columns, he will see that there is the same difficulty in conceiving that these columns can be adequate to convey the whole cerebral influence downwards to the spinal cord, as he has himself pointed out in the doctrine that they contain all the fibres of communication between the cerebrum and the motor nerves. On the other hand, if we look at the strands of the medulla oblongata as simply commissures between the cranial and spinal portions of the automatic axis, and look upon the cerebrum as connected with the upper end of that axis, by the whole of those radiating fibres which pass from it to the hemispheric ganglia, the anatomical arrangements seem to be in much better harmony with the physiological facts. For there can be no doubt that, in adult man, nearly all the movements not immediately concerned in the maintenance of the organic functions are the result of voluntary direction; the greater number originating in a determination of the will, and the remainder being guided and controlled by it. Consequently we should expect that the connexion between the cerebral and the automatic portions of the cerebro-spinal apparatus should be of the most extensive and varied nature, such as we find to exist in the fibrous portion of the cerebral hemispheres.

The views which we have advanced as to the really automatic character of voluntary movements, and the inclusion of the sensorial centres in the automatic, rather than in the cerebral, division of the apparatus, appear to us to be in most singular harmony with the phenomena of those movements which were not unaptly designated by Hartley as "secondarily automatic," having been voluntary in the first instance, but having been brought by habit into more or less complete independence of the will. Such actions, in fact, take the place in man of those which are primarily and purely automatic in many of the lower animals. Take, for example, the movements of progression. In the first instance they are performed in sole respondence to the will. Whilst the child is learning to talk, every single effort has a voluntary source; but still its immediate dependence on the automatic mechanism is evident in the necessity for attention to the guiding sensations as the regulators of the voluntary effort. As the habit of movement becomes more and more established, however, we are able to withdraw both the attention and the voluntary effort, to such a degree that at last it is only necessary for the will to start or commence the actions, and to *permit* their continuance. We think that no one can doubt this, who can analyse his own consciousness as to those states of "reverie" in which the mind is completely withdrawn from the contemplation of external objects, and is concentrated, as it were, upon itself. A person who is subject to such fits of "absence of mind," may fall into one of them whilst walking the streets; his whole attention shall be absorbed on his train of thought, so that he is conscious of no more interruption in its continuity, than if his body were perfectly at rest and his reverie were taking place in the quietude of his own study; and yet during the whole of that time, his limbs shall have been in motion, carrying him along the accustomed path; and his vision shall have given the direction to these movements, which is requisite to guide him along a particular line, or to move him out of it for the avoidance of obstacles. In such a case it would seem as if the contact of the foot with the ground, in making each step, was the stimulus to the next movement; and as if the visual organs exerted just the same automatic guidance over the direction of the progression, as they appear to do in animals which do not possess a distinct organ of intelligence and will. The complete occupation of the mind in other ways, as in close conversation or argument, is equally favorable to this independent action of the automatic apparatus in progression; and many other cases might be cited, in which an habitual train of actions, such as reading aloud or playing on a musical instrument, is not interrupted by the complete withdrawal of the attention and consequent suspension of voluntary effort.

It would be difficult to explain such phenomena on the hypothesis of the "distinct system;" because we cannot conceive how a set of movements originally performed by the sensori-volitional or cerebral fibres can ever be *transferred* to the excito-motor or spinal; and every one allows that in man these movements are in the first instance prompted by the will and performed under the guidance of sensations. On our hypothesis, on the other hand, the solution is easy and natural. Even when voluntary, as they are in the first instance, these movements are performed by the instrumentality of the automatic apparatus; and the influence of habit gradually links on the actions to the sensations which at first guided them, in such a manner that the latter at last come to be in themselves adequate excitors of the movement, when the series has been once commenced by an exertion of the will. It has been thought by some a sufficient proof of the voluntary nature of these movements, that we can check them at any time by an effort of the will; but this we do only when the attention has been recalled to them, so that the cerebrum, liberated as it were from its previous self-occupation, resumes its usual play upon the automatic centres. It has been asked, moreover, why, if these sensations are adequate to call forth automatic movements when the perceptive and voluntary operation of the cerebrum is suspended, they do not exert the same influence when it is in its ordinary condition of functional activity. This inquiry, however, is equally applicable to the most undoubted cases of automatic movement; thus we do not find that tickling the soles of the feet in man, or passing a catheter along the urethra, ordinarily produce the same semi-convulsive agitation of the lower extremities, that such irritations will call forth when the spinal cord has been divided or seriously injured in the dorsal region. And when the cerebral influence is withdrawn by the absorption of the mind in reverie, slight stimuli will often call forth unaccustomed and sometimes powerful automatic movements. So, again, during sleep, when both the cerebrum and the sensory ganglia are in a state of torpor, reflex actions may be excited through the spinal cord, such as could not be called forth by the same stimuli in the waking state. The fact appears to be that, when the cerebrum is in its usual state of activity, any irritation which would dispose to reflex action, if its effect were limited to the automatic centres, is expended (as it were) by being propagated onwards to the cerebrum; and the mind, thus rendered conscious of it, controls, if necessary, any tendency to automatic action which it may have excited. But when this onward propagation of the polar state is checked, either by interruption of the structural continuity, or by the want of a recipient condition of the cerebrum, it must then react in the automatic apparatus itself. The case, in fact, appears to us to be analogous to that of the emotional impulses, which are not so prone to act upon the *mind* when they can discharge themselves through the *body* by muscular movement. The immediate seat of these impulses, Dr. Todd agrees with us in locating in the sensory ganglia; but he does not seem to us sufficiently to recognise the participation of the cerebrum in emotional states. A simple *feeling* of pleasure or pain excited by a sensation, and tending to react directly upon the muscular system, cannot be correctly termed an emotion; for this last involves an *idea*, which, though originally springing from a sensation, at last comes to be quite independent of external stimuli. But the *idea* is not emotional so long as it is a state of simple consciousness; it must be associated with a pleasurable or painful feeling, in order that it may become so; and then, if strongly excited, it may act at once through the automatic centres, without any effort of the will. In an emotional action, then, we believe the impulse to be formed in the sensorial centres, so that it so far resembles an instinctive movement; but this impulse derives its force rather from a cerebral idea than from an external sensation; and its influence, if not exerted downwards through the motor apparatus, is transmitted back again to the cerebrum, so as to modify the course of the intellectual operations, and to supply motives to the will. In this last case it gives rise to a *desire*, which involves the intellectual conception of an absent object; whilst an instinctive propensity is only excited by the present sensation. We may remark, before taking leave of this subject, that the phenomena of "secondarily automatic action appear to us as irreconcilable with Dr. Todd's exclusion of the sensorial ganglia from the centres of what he terms "physical nervous action," as they are with Dr. M. Hall's hypothesis of a "distinct system." For these ganglia are clearly in operation in the movements in question; the actions of progression being guided by the sight, those of reading aloud by the sight and sound conjointly, and so on; and this guidance being as independent of the attention and of voluntary effort, as if there were no cerebrum at all.

Before proceeding with Dr. Todd and Dr. Gull, to consider the present state of our knowledge in regard to certain Diseases of the nervous system, we shall briefly sum up the positions we have endeavoured to establish with respect to its Physiological action.

1. The sensorial ganglia, medulla oblongata, and spinal cord of vertebrated animals; the cephalic ganglia and ventral chain, which are the homologues of these parts in articulata; are the immediate instruments of *all sensorial and motor changes:* and by their sole and independent action are produced all those movements, which, being unprompted by the will, or even taking place in opposition to it, are said to be *automatic.* These automatic movements may be excited either by sensations, or by

impressions which do not necessarily affect the consciousness; and this would seem to be the mode in which *all* the actions of insects and other animals destitute of a cerebrum are called forth and directed. The number of purely automatic actions diminishes in proportion to the developement of the cerebrum, and to the subjection of the automatic apparatus to its control; but even in man, those most closely connected with the maintenance of the organic functions remain quite independent of the will, and most of them do not require consciousness for their excitation. And when the activity of the cerebrum is suspended or otherwise directed, without any affection of the automatic apparatus, movements which have been long habitually performed in a particular manner may be kept up, when the will has once set them in action, through the automatic mechanism alone.

2. On the other hand, the cerebrum is the instrument of purely mental operations, and has no direct connexion with the external world. It receives all its stimuli to action through the sensorial ganglia; and it exerts all its influence upon the muscular system through the centres of automatic movement. Hence it may be said to be played upon by the sensorial portion of the automatic apparatus, and to play upon its motor portion. An *idea* with which a pleasurable or painful *feeling* is associated, may act emotionally (as we say) upon the automatic apparatus, without any voluntary direction, or even in opposition to it. The will may be exerted in antagonizing, strengthening, guiding, or controlling the automatic actions; but in every case, the muscle directly receives its power from the automatic centre; and the very same movement may be automatic, emotional, or voluntary, according as the motor influence has been excited in the centre from which the nerve proceeded, by an external stimulus acting through an afferent nerve, or by an emotional impulse transmitted downwards from the sensorial centres, or by a volition originating in the cerebrum.

We again say, then, that we agree with Dr. Todd in the essential parts of his hypothesis; but differ from him as to the line of demarcation between the volitional and automatic centres, which we think he would do well to reconsider.—Having thus discussed his physiological positions, we shall follow him through those parts of his lectures on the pathology and treatment of Convulsive diseases, in which the most interesting novelties are presented. For novelties we find there, and of no mean value, even in regard to a class of diseases which we have been of late accustomed to look upon as comparatively well understood.

After classifying Convulsive movements under three heads,—1, the choreic or jactitating;—2, the tonic or tetanic;—3, the clonic or epileptiform—Dr. Todd commences with a clinical history of *Chorea;* in the course of which we find the following valuable remarks upon a form of paralysis connected with this disorder, which has been but little noticed.

> "The choreic convulsion is frequently succeeded by a paralytic state of the limbs previously convulsed; the convulsive movements cease, and the limbs remain paralysed; the paralysis is seldom complete, although considerable. When the choreic convulsion had affected one side, the paralysis will likewise affect the same side; it will be *hemiplegic*, and will resemble very closely hemiphlegia from diseased brain, for which it is very apt to be mistaken by those not aware of this fact. Not long ago a boy was brought to my house for me to advise whether the hemiplegic

paralysis under which he suffered should be treated by antiphlogistic means, such as mercury, &c. I soon discovered that the case was one of choreic paralysis, and advised steel and shower-baths, and exercise of the limbs; under which he rapidly recovered.

"In a very few instances, paralysis *precedes* the choreic convulsion, but so far as my observation informs me, it is then accompanied by the peculiar thrust of the tongue; by this sign I have been enabled to distinguish it.

"That paralysis may occur in this way is evidently a fact of the highest practical interest, whilst it is not devoid of importance as bearing upon the pathology of the disease. Nevertheless I do not find it noticed in any of the descriptions of the disease in the practical works which I have consulted. The previous history of the case, the absence of any other symptom referable to the head, and the gradual mode of invasion of the paralysis, in addition to the peculiar mode of protrusion of the tongue, will always enable the careful practitioner to distinguish this paralysis from that caused by cerebral lesion." (Lecture i, p 663.)

He then directs particular attention to a peculiar morbid affection of the heart, manifested by a bellows-sound, which is sometimes aortic systolic, but much more commonly mitral systolic or regurgitant, as a very frequent accompaniment of chorea. Its occurrence was noticed by Dr. Todd in his Croonian Lectures on the Pathology of Rheumatism, delivered six years since; the frequency of the bellows-sound in chorea having been first made public by Dr. Addison of Guy's Hospital. Having stated adequate reasons for the belief that this bellows-sound is due to organic lesion of the mitral valves, rather than to any disturbance of the muscular action of the heart, he thus proceeds:

"But now we are met with another question not less important. What can have created this morbid state of the mitral valves? It is rare to meet any symptom of heart affection, either preceding or accompanying the chorea: and the valvular imperfection is often overlooked, and only discovered by careful auscultation of the heart's sounds.

"The true answer to this question is, I believe, to be found in the fact that many of the patients who suffer from chorea are of a rheumatic diathesis, and that, in consequence of this rheumatic state, they experience an insidious endocarditis, which generally affects the mitral valves.

"The proof that rheumatic diathesis and chorea are frequently met together, is derived from these facts,—that many of the sufferers from the latter malady, when carefully examined, are found to have previously suffered more or less from chronic articular pains, to have sprung from rheumatic or gouty parents, and to exhibit deranged secretions, such as occur in rheumatic states. I have seen many instances of choreic children passing urine of high specific gravity, loaded with lithates, and sometimes precipitating lithic acid in very notable quantity, and for a considerable time. Choreic patients often suffer from rheumatic fever; and, as the subjects of that fever are very liable to its recurrence, so a child who has once had chorea is apt to have it again and again." (Lecture i, p. 664.)

He further remarks, that chorea does not occur in children whose nutrition is in a healthy state; but in those whose digestive powers are feeble, or who are badly fed, either by too abundant and ill-adjusted diet, or by food defective both in quantity and quality; and he justly observes, that it is not unreasonable to expect to find many rheumatic subjects among such patients, especially among the children of the poor, who are exposed to the inclemencies of the weather. In confirmation of his idea of the connexion between chorea and the rheumatic or gouty diathesis, he notices the fact that "a sort of fidgety restlessness of the limb, and a difficulty, and sometimes an impossibility, of accomplishing certain actions with anything like accuracy or precision," is an occasional concomitant of gout.

Instead of proceeding with Dr. Todd through the clinical history of the other convulsive diseases, we shall pass on at once to his view of the pathology of Chorea, as stated in his second lecture. He commences by discussing the general question of the relation of convulsive movements to the nervous and the muscular systems; and decides, as we think that every unprejudiced pathologist must do, that it is in the former system that the disordered action primarily exists, although it is by no means improbable that in chorea and other convulsive disorders which mainly depend upon a disordered state of the nutritive functions, the muscular apparatus may be so affected by this, as to be unusually prone to sympathise with the functional disturbance of the nerves. The influence of mental emotion in inducing chorea, and in violently exciting the movements when the disorder is established, clearly point to the nervous system as the primal source of the disease; and the next question to be determined is, what division of the nervous system is the one primarily implicated. We must confess that we do not understand the language which Dr. Todd employs in conducting this inquiry, any more than we can reconcile the statement which we have already quoted (p. 9) with the ordinary facts of anatomy. For after inquiring whether the locality of the disorder be in the spinal cord, or in the brain,—in that part in which the nerves are implanted, or in that which does not receive nerves,—he decides upon the *brain;* chiefly on the grounds that the hemiplegic character of partial chorea indicates its origin above the decussation of the anterior pyramids, and that its frequent origin from a mental cause points to the brain as its seat. And yet in the next sentence he expresses his belief that the special seat of chorea is "that part of the brain which is most nearly connected with the points of implantation of the auditory and optic nerves," which can mean nothing else than the auditory and optic ganglia. Surely Dr. Todd must see that if, according to his previous definition, the brain be the part of the nervous system, "which does not receive nerves," the auditory and optic ganglia form no part of the brain. Such is the confusion resulting from an adhesion to popular phraseology, instead of employing the well-defined terms of science; and such too, we must remark, is the result of neglecting the indications of comparative anatomy, in determining what are really the distinct portions of the encephalon. If Dr. Todd will only ponder for a short time over the brain of a fish, we do not think that he will again affirm that a disease must be of "cerebral origin," because its active seat is above the decussation of the anterior pyramids This, however, is more a question of physiology than of pathology; and we have already assigned our reasons for the belief, that the chain of sensory ganglia at the base of the brain must be regarded as the complement of the spinal cord, in the formation of the automatic centre on which the cerebrum is superposed. With regard to the actual locality of the disease in question, we are disposed to agree with Dr. Todd; who takes no notice, however, of the circumstance that the very same idea was put forth some years since by Dr. Carpenter (Human Physiology, 2d edit. 1844, § 290, *note*), and upon the very same grounds—namely, the peculiar connexion of the disordered movements with emotional excitement, and their cessation during sleep, on both of which grounds it was argued by Dr. Carpenter that the movements could not be spinal, as supposed by Dr. M. Hall. Having determined the seat of the morbid process, we have next to inquire into its nature; and we think that Dr. Todd has brought together a valuable body of evidence indicative of the dependence of this action upon a state of imperfect nutrition, involving a depraved and perhaps a poisoned state of the blood, rather than upon any serious organic lesion. For in the few fatal cases of this disease, in which due examination of the nervous centres has been made, nothing has been discovered that would at all account for the symptoms; and in general, the tendency to spontaneous cure indicates that the disturbance which it produces admits of easy repair by natural means. The character of the movements themselves is indicative of an asthenic state of the system; and this is usually traceable also in the history and actual condition of the patient. The disease generally occurs, too, at a time of life "when the nutrition of the brain is passing, as it were, through a state of transition, from that of infancy or very early childhood, to that of the adult period, when that organ is peculiarly prone to suffer from mental shock or other causes of disturbance of the system." From these and other considerations, Dr. Todd draws the following conclusions as to the humoral origin of the disease:

> "That the nature of the cerebral affection is one of weakened nutrition, with some degree of irritation; as poor blood, rendered perhaps impure by the presence of the matter of scrofula, or of rheumatism, or by some morbid matter peculiar to chorea, excites the nervous battery, and causes it to generate its force feebly and irregularly. The centre of emotion, thus feebly excited and irritated by the presence of an abnormal ingredient in the blood, extends its feeble and irregular polarity to that portion of the centre of implantation of the nerves, which, as the polar state of the conductors of the battery is regulated by that of the battery itself, exhibit the same enfeebled polarity as the centre in which they are implanted.
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> "The disease is essentially one of depraved general nutrition, which must be set right before the symptoms which arise out of the local disturbances can be removed; and this is the point of practical interest which must regulate our treatment of the disease.
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> "These conclusions respecting the pathology of chorea receive confirmation from the facts to which I have already alluded—namely, that choreic movements occur in certain gouty states, and also in white softening of the brain, arising from diseased arteries. Under both these conditions the nutrition of the brain, as well as that of the nerves and muscles, must be depraved and weakened; depraved, especially in the former instance, by the matter or poison of gout; weakened in both." (Lecture ii, pp. 728-9.)

He replies to the objection that the effects of this blood-poison are frequently localized, as in various forms of partial chorea, by adverting to the well-known phenomena of the *selection* of particular organs or tissues by other poisons whose circulation in the blood is now generally admitted, such as those of gout, rheumatism, scarlatina, syphilis, &c. And he adduces the well-established benefit of tonic treatment, and the injurious consequences of depletion, as confirmatory of the doctrine which he has advanced. With regard to this last point we find the following valuable observations, which every practitioner will do well to bear in mind.

> "In the acute form of general chorea, it is very important that the practitioner should not suffer himself to be led by the urgency of the symptoms, and the

violence of the movements, into the adoption of any depleting or depressing treatment, under the notion of stopping the movements by reducing the powers of the patient. The more you weaken the patient under these circumstances, the more incessant and urgent will the movements become. Great diligence, however, is needed in administering support and stimulants with the utmost freedom, and in throwing in large quantities of quinine and iron, or other tonics, care having been previously taken to unload the bowels by clyster or by purgatives. Great benefit also arises from the free and frequent use of the cold bath; from what I have myself seen, I would say, that the greatest immediate benefit arising from the use of the cold bath is from its exciting a disposition to sleep much more decidedly than opiates, which do not generally act favorably in any of the forms of chorea." (Lecture ii, p. 729.)

We now pass on to *Tetanus;* of which disease Dr. Todd does not attempt to give a complete clinical history; simply directing the attention of his auditors to those points, which, in his opinion, have the most bearing upon the pathology of the disease. Of course the exact similarity between the symptoms produced by strychnia and those of the natural disease, is a strong argument in favour of the humoral origin of the latter. Of the absence of any perceptible change in the nervous centres, in either case, Dr. Todd thus speaks:

"The fact, now abundantly proved, that these symptoms occur without any lesion of the nervous system appreciable by aided or unaided vision; and what is equally remarkable, the artificial tetanus (if I may so speak) caused by the administration of strychnine in large doses, occurs equally without the slightest lesion of any part of the cerebro-spinal axis. I have examined, with the most scrupulous care, the spinal cords of rabbits which died in strong tetanic convulsions, kept up for some time after large doses of strychnine; but I could not discover, even with the highest powers of the microscope, any indication of deranged structure." (Lecture i, pp. 665-6.)

The occasional endemic prevalence of tetanus, the known dependence of trismus nascentium and of laryngismus stridulus (which are undoubtedly tetanoid diseases) upon a disordered state of the nutrition, imperfect ventilation, and other influences tending to deprave the blood, and the tendency of this depravation to manifest itself in obvious disorders of nutrition in children who have survived the paroxysms of laryngismus, but who have not been restored to health, are among the facts adduced by Dr. Todd in support of his argument for the humoral origin of tetanus. That the locality of the disease is the spinal cord, is now universally admitted; and that the nature of the morbid process is not one to be accounted for by any alteration in the supply of blood, or by the idea of inflammatory action, but that it rather consists in a state of peculiar excitability or, "exalted polarity" of that division of the cerebro-spinal axis, will, we believe, be as generally conceded. His idea appears to be, that this exalted polarity originates, in cases of traumatic tetanus, at the distal extremity of the nerve; but that its extension and its implication of the spinal cord are due to the existence of some special poison in the blood, the introduction of which is dependent either upon some general depravation of the nutritive processes, or possibly, in traumatic cases, upon some morbid action taking place in the wound.

"Such, then, is the pathology of tetanus. A man receives a wound—this wound occasions an irritated, a polar state of certain nerves,—and this polar condition is communicated by a process of induction to the whole spinal cord, which, by some modification of the nutrition of the cord due to some altered state of blood, assumes that state the more readily, and retains it the longer.

"Unless we admit that the blood has some share in the production of the phenomena, we shall fail in explaining the occurrence of tetanus without injury, or the tetanus of infants, but more especially we shall fail in explaining its greater proneness to be developed in certain localities, or in certain states of atmosphere and climate.

"And surely the fact to which I have already adverted, of the much greater facility of inducing this polar state of the spinal cord by the introduction of certain substances into the blood even in almost infinite esimal quantity, than by mere mechanical irritation of the nerves, strongly points to and favours the conclusion, that a change in the natural condition of the blood may greatly promote, if not wholly cause, the development of the tetanic state; and this change in the blood may be caused either by the introduction into it of some new material from without, or by the generation within it of some new matter possessing highly poisonous qualities." (Lecture ii, p 767.)

The tendency of tetanus and its allied disorders is unfortunately not, like that of chorea, to spontaneous cure; on the contrary, it is nearly always fatal, and it must be confessed that, when tetanus is once established, our hopes of success by any form of medical treatment are very small. Any contribution, therefore, to the attainment of a less empirical and more successful method, is to be highly estimated, and is worthy of a fair trial. The following are the points on which Dr. Todd chiefly rests:

"Hitherto the various plans of treatment pursued in tetanus have received but a small amount of success. I am inclined to attribute their failure partly to the fact that practitioners have not sufficiently kept in view the important point, that death takes place, not by any disorganization of important vital organs, nor by the destruction of processes essential to life, but by the exhaustion consequent on the frequent renewal of the paroxysms of tetanic convulsion,—and partly, also, to this fact, that our treatment has been hitherto so empirical, that no definite plan seems ever carried out with sufficient fixedness of purpose in a sufficiently large number of cases.

"The pathology and clinical history of tetanus point out three objects which the practitioner ought constantly to keep in view in the treatment of it:

"1. To support the strength of the patient as much as possible, so as to oppose the exhausting effect of the convulsive paroxysms.

"2. To remove all possible sources of irritation or of depravation of the blood, in vitiated secretions, bad diet, impure air.

"3. To diminish and reduce the exalted polarity of the nervous centres to their normal condition, and, if possible, to effect this by means which will not exhaust or reduce the powers of the patient." (Lecture ii, p. 768.)

The first of these indications is to be fulfilled by an ample supply of easily-digested nutriment, with stimulants and tonics. The second, by due attention to the excretions, especially those of the bowels, skin, and kidneys; any excessive drain, however, being carefully avoided, and the practitioner always bearing in mind that "the object is to alter and improve, not to pull down." The attainment of the third and most important object is attended with much greater difficulty; all our ordinary sedatives having been tried and failed. Opium is not a sedative to the spinal cord, neither is hydrocyanic acid; on the contrary, both these remedies tend to excite its action. Belladonna, conium, and tobacco have a more direct sedative influence on the cord; but they are not safe or manageable remedies, their action being sometimes the immediate cause of death. Dr. Todd is disposed to give a more complete trial to *cold* and *chloroform*, two agents which exert a considerable influence over the polarity of the spinal cord, and whose powers have not yet in his opinion, been fairly tested. Of the former he can speak favorably, from his own experience; but the employment of the remedy, by the application of ice in ox-gullets to the spine, requires considerable judgment and vigilance on the part of the practitioner; in the first place, to secure the penetration of the cold to the spinal cord itself; and secondly, to prevent it from occasioning an injurious depression of the heart's action. Of chloroform, as a remedy in tetanus or tetanoid affections, Dr. Todd has had no experience; but he has ascertained by experiment that ether has the power of prolonging for many hours the life of an animal in which artificial tetanus had been induced by the strychnia-poison. In the exhibition of it, great care must be taken not to carry it to the extent of depressing the heart's action; and it will probably not be until after many unsuccessful trials, that we shall learn the rules for its most advantageous employment. The unquestionable prolongation of life, however, in many of the cases in which it has been employed, and its apparently complete success in one or two recorded instances, offer every encouragement to a fair trial of this remedy.

Of the treatment of laryngismus stridulus, Dr. Todd has nothing new to say. He lays great stress on measures adapted to improve the general state of nutrition, and to remove sources of irritation; and he deprecates, very justly in our opinion, that continual and purposeless use of the gum-lancet in which some practitioners indulge, as if for the sake of doing something. And of treatment more immediately directed to the diminution of the nervous excitability, he thinks most highly of a rapid dash of cold water upon the back and shoulders, and along the spine.

Dr. Todd considers, in the first place, the group of convulsive diseases, of which *Epilepsy* is the type; including with it the puerperal convulsions of women and the ordinary convulsive "fits" of children. In recounting the clinical history of epilepsy, he lays great stress on the precursory symptoms, as consisting, in the great majority of cases, in a disturbed state of sensation or of intellectual action. The loud, unearthly shriek which often ushers in the fit, is attributed by him to some disturbance of sensation, some severe pain, which causes the patient to cry out, but which the sudden invasion of the epileptic state dissipates from his memory. The tendency of epilepsy, he remarks, is not so much to death, as to the destruction of the intellectual power; and this takes place the more rapidly as the paroxysms are more frequent and more severe, and occurs more surely where the fits have been accompanied by much mental disturbance or stupor, than where the convulsive character predominates. The tendency to recurrence of attacks of epilepsy, at intervals which are sometimes of very uniform length, is an important feature in the history of the disease. And, as helping to indicate its humoral nature, the negative fact of the frequent absence of any morbid appearances whatever, in the brain and spinal cord of those who have died whilst affected with epilepsy in its acute form, is of great importance. The congestion which has been noticed in the brains of epileptics is only found, as Foville pointed out, in cases in which death has taken place during the fit, and is clearly attributable to the asphyxiated state of the patient; and of the other morbid appearances which have been sometimes met with, Dr. Todd justly remarks that "they are rather the signs of the altered nutrition brought on by any cause which creates frequent disturbance of the actions of the brain, than the causes of that disturbance;" whilst their influence, if any, would be constant, whilst the epileptic phenomena are periodical. He takes the same view in regard to the morbid appearances sometimes found in the brains of children after death by convulsions; and, as we believe, with equal justice And he adverts to the well-known frequent occurrence of convulsions in children, as one of the earliest results of the introduction of the poison of exanthematous or other febrile diseases into the system, in proof of their general humoral origin. Again, an artificial epilepsy may be induced by certain poisons, as œnanthe crocata, conium, and hydrocyanic acid; the results of the last-mentioned agent, however, being often complicated by tetanic spasms. These facts prepare us for the doctrine, that the retention of certain important excretions in the blood, from the imperfect action of their proper eliminating organs, may produce convulsive attacks, strongly resembling those of epilepsy.

> "When the liver or kidney is in such a state that the elements of the bile, or those of the urine, are not separated in their normal quantity, the patient is very apt to have several convulsive fits, which often terminate his existence. Renal disease is a much more fruitful source of convulsions than hepatic, and the form of disease in which they are most apt to occur is in that small, contracted kidney, which by some is regarded as a stage of Bright's disease, but which, in reality, is a special morbid state of kidney, a chronic nephritis, frequently produced by gout, and therefore forming the finale of many a gouty patient's career, but often resulting from other causes. In this state of kidney, the gland has shrunk chiefly at the expense of the cortical substance; the growth of epithelium (the immediate agent in the separation of organic products) is greatly impaired, many of the renal tubes are stripped of it, and no development of epithelium at all takes place in them. Hence, while in many of these cases water is freely eliminated, and even a diuresis takes place of an urine, pale and of low specific gravity, the organic products, urea and uric acid, accumulate in the blood, and act, especially the former, as a poison to the nervous system. Any state of kidney, however, if it be unfavorable to due elimination, may give rise to these symptoms; and accordingly I have seen them in that acute affection of the kidneys which is associated with inflammatory dropsy, and with dropsy after scarlet fever, to which my friend, Dr. Geo. Johnson, has given the appropriate name *Desquamative nephritis;* and also in fatty disease of the kidney, where the accumulation of fat has taken place to such a degree as greatly to congest the Malpighian bodies, and to interfere seriously with elimination." (Lecture i, p. 670.)

The whole of Dr. Todd's Third Lecture is devoted to the inquiry into the pathology and treatment of Epilepsy; to frame an adequate theory of which, he duly feels to be a task of no ordinary difficulty, owing chiefly to the imperfection of our knowledge as to the individual functions and mutual relations of different portions of the encephalic nervous centres. The complete epileptic paroxysm is compounded of many phenomena, which may present themselves separately in particular cases: thus, we may have the loss of consciousness without any muscular disturbance; whilst, on the other hand, we may have the muscular disturbance without loss of consciousness. Any theory of the pathology of true epilepsy, the paroxysm of which includes both these states, should explain,—1st, the sudden occurrence of complete loss of consciousness;—2d, the sudden privation of voluntary and locomotive power, with more or less violent epileptiform convulsions;—3d, the periodical recurrence of the paroxysm, with the recurrence to a normal state in the interval;—and 4th, the tendency of the repetition of the paroxysm to destroy the power of the brain, and the frequent occurrence of the maniacal state in connexion with the fits.

Dr. Todd first discusses at considerable length the question of the locality of the diseased condition. That it does not primarily affect the spinal cord, he considers to be proved by the sequence of the phenomena; the muscular disturbance being consecutive to the impairment of consciousness, instead of being anterior to it, as would be the case if the disturbance extended from the cord into the brain; whilst no affection of the spinal cord alone would account for those cases, in which loss of consciousness is the only manifestation. In this we fully accord. He then proceeds to inquire into the relative functions of the several divisions of the encephalon, considered under the designations of the "hemispheric lobes," "the corpora striata and optic thalami," "the medulla oblongata," "the corpora quadrigemina and mesocephale," and "the cerebellum." In order to get at the real seat of the disease, he pursues the method of exclusion; and first dismisses the medulla oblongata on the same grounds as he had put aside the spinal cord. Of the corpora striata and thalami optici he thus speaks:

> "These remarkable ganglia, although intimately connected with each other, are nevertheless very different in structure, and probably, also, very different in function. They are no doubt directly concerned in the development of voluntary motions and of sensation, and their intimate anatomical union is in harmony with the close connexion and interdependence of sensation and motion. They have nothing to do with intellectual operations, and therefore not with consciousness; their functions seem limited to the simple exercise of the will, or to that of the perception of some impression made on a sentient organ. If the corpus striatum or optic thalamus be diseased, you have paralysis of motion or of sensation, or both; but a sound state of intellectual power, and of the consciousness, is quite compatible with extensive disease of both of these organs, provided it does not extend beyond them. Mechanical irritation of these bodies does not produce convulsions, nor does any morbid state of them ever give rise to these disturbances of motion. It is clear, then, that these bodies can no more claim to be the seat of the primary disturbance in epilepsy, than the medulla oblongata." (Lecture iii, p. 818.)

Now this passage either displays a singular confusion of ideas, or a singular departure from the ordinary meaning of language. We are told that certain parts "have nothing to do with intellectual operations, and *therefore* not with consciousness;" as if a part could not be a centre of consciousness, without being the seat or instrument of intellectual operations. But in the remainder of the sentence, Dr. Todd appears to maintain precisely the opposite view; for he says that "their functions seem limited to the simple exercise of the will" (which we had always imagined to be a manifestation of intellectual processes), "or to that of the perception of some impression made on a sentient organ," which perception, we should have thought, could scarcely occur without consciousness. So, again, in the next sentence we are told that disease of these organs commonly gives rise to paralysis of motion or of sensation, or both; yet that neither the intellectual power nor the consciousness are affected, so long as the disease is restricted to them, although the consciousness of a large class of impressions is suspended. And, having been informed, in addition, that neither mechanical irritation nor morbid affections of these organs ever induce convulsions, we are assured that these bodies can no more claim to be the seat of the primary disturbance in epilepsy, than the medulla oblongata; an assertion whose weakness must be apparent upon a very slight consideration. For Dr. Todd has never seen tetanus produced by structural changes in the spinal cord, nor from mechanical irritation, yet he locates it there; and he does not hesitate to regard epilepsy as a disease of the cerebrum, notwithstanding that no mechanical irritation of that organ can be shown to excite muscular movements. If the view which we have elsewhere given of the functions of these organs be correct, namely, that they are the ganglia of tactile sensibility and the originators of the respondent movements, being the parts especially "played on" by the cerebrum,—we can scarcely regard them as otherwise than involved in the disorder; constituting, as they do, the connecting link between the cerebral hemispheres and those automatic centres from which the convulsive movements (in Dr. Todd's view, as in our own) immediately proceed; at any rate we can see no such ground for their summary exclusion, as should of itself warrant us in attributing the phenomena to a morbid alteration in any other part.

That the cerebellum is in any way involved in epilepsy, appears to us, with Dr. Todd, quite improbable; on the ground, however, that this organ has no relation to consciousness, so far as we are aware, rather than because mechanical irritations of its substance do not give rise to motions.

Thus we are left in our author's opinion, either to the corpora quadrigemina and mesocephale, or to the cerebral hemispheres, as the seat of the disease; and he regards both these as implicated, the former consecutively, the latter mainly and primarily. This conclusion he bases on the following arguments. In the first place, he remarks that no point in physiology is better established, than that the cerebral hemispheres are the immediate instruments of the intellectual operations; and he quotes the effects of the removal of the hemispheres in Flouren's pigeon as not only proving this, but also as proving the loss of consciousness. In the former position we quite accord; but the evidence of comparative anatomy appears to us quite opposed to the idea that the cerebral hemispheres are the exclusive seat of consciousness; whilst the results of vivisections, if interpreted with a fair allowance for the disturbance produced by the operation, seem to us equally opposed to the belief that consciousness is necessarily destroyed by the removal of the cerebral hemispheres, the optic ganglia being left. Upon this point, however, we shall not now enlarge; what we consider as adequate ground for our belief having been given on a former occasion. (Brit. and For. Med. Rev., Vol. XXII, p. 508.) The fact that such morbid appearances as do present themselves in old epileptic cases, chiefly affect the surface of the hemispheres or the investing membranes, is one of some importance; in Dr. Todd's view these alterations must be looked upon as the accumulated effects produced by the various paroxysms, each fit doing some amount of damage to the brain, which may partly recover itself in the interval, but receives a new mischief in the next paroxysm. Dr. Todd's location of consciousness in the cerebrum exclusively, leads him to affirm that an affection of this part is capable of inducing all the phenomena of epilepsy, as far as regards consciousness and sensibility; and although he is unable to trace its connexion with the convulsive movements with equal certainty, yet he says that "we must not deny to these lobes a certain power of exciting motion, either directly or indirectly, through their influence upon other ganglia of the brain." Now, we do not dispute this position; but Dr. Todd must remember that he has excluded the thalami optici and corpora striata upon the very grounds which he now seeks to evade. For no evidence can be obtained by experiment, that lesions of the cerebral substance give rise to painful sensations; and all experimenters concur in the assertion, that no irritation of the hemispherical surface or substance gives rise to muscular movements. His conclusion is, "that a disturbed state of the hemispheric lobes may undoubtedly give rise to so much of the phenomena of the epileptic paroxysm as refers to the affection of consciousness and sensibility, and that it may, *in some degree* at least, contribute to the development of the convulsions." He thinks, however, that the corpora quadragemina and mesocephale are also implicated; and adduces the following very interesting experimental results in support of this position.

> "I have been desirous of ascertaining whether the parts within the cranium, if excited by the stimulus of galvanism, would give rise to any phenomena similar or analogous to those produced by galvanic stimulation of the spinal cord. Accordingly, I determined to subject them severally to the action of the magneto-electric rotation machine,—a most convenient instrument for physiological experiments.
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> "The experiments were performed on rabbits. I took the spinal cord first: here we had the well-known tetanic effects to which I have already frequently referred.
>
> "Next I tried the medulla oblongata; the effects of the stimulation of this organ were much the same as those produced by irritating the cord.
>
> "I then tried the corpora quadrigemina and the mesocephale. Having passed fine bradawls into the cranium, in such a direction as I had previously satisfied myself would lead to this organ, I subjected it to the influence of the machine; general convulsions were produced, of a character essentially different from those which resulted from stimulating the spinal cord or the medulla oblongata. They were combined movements of alternate contraction and relaxation, flexion and extension, affecting the muscles of all the limbs, of the trunk, and of the eyes, which rolled about just as in epilepsy.
>
> "On inserting the awls into the hemispheric lobes, still different effects were produced by the application of the machine. I could observe nothing like true convulsions; but slight convulsive twitching of the muscles of the face took place, which were no more than would be caused by the stimulus of galvanism acting upon the nerves of the face.
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> "These experiments, which I repeated several times, and each time with like results, seem to denote that convulsions are modified according to the part of the cerebro-spinal axis which is primarily excited: if it be the spinal cord, they are tetanic; if the medulla oblongata, they are tetanic likewise, other parts being involved; if the corpora quadrigemina and the mesocephale, they are epileptic; if the cerebral hemispheres, you scarcely have any convulsions, but slight twitchings of the muscles." (Lecture iii, pp. 821-2.)

The following is Dr. Todd's general conclusion in regard to the seat of the morbid affection which gives rise to the epileptic paroxysm:

> "The part of the encephalon primarily disturbed, is the hemispheric lobes: if the disturbance do not go beyond a certain point, the phenomena are limited to loss of consciousness and impaired intellectual action, with more or less of sopor.

But if the disturbance be considerable, then the tubercula quadrigemina and mesocephale become involved, and *epileptic convulsions* are produced. If the disturbance of this centre be very great, the medulla oblongata and the medulla spinalis become much excited, and the convulsions are complicated with a good deal of the tetanic character.

"We know that there is great variety in the intensity of the epileptic paroxysm, i. e. not only in the intensity and duration of the coma, but also in the violence of the muscular paroxysm. All this depends on the nature and force of the primary disturbance in the cerebral hemispheres, but in all instances the hemispheric lobes are first disturbed; next follow the corpora quadrigemina; and upon the intensity of their disturbance depends the extent to which the medulla oblongata and the spinal cord are engaged." (Lecture iii, p. 822.)

As our physiological view of the relation between the cerebrum and the ganglionic centres on which it is superposed, differs in some important point from Dr. Todd's, our readers will be prepared to expect that we do not altogether accord in Dr. Todd's conclusion. Looking to the whole assemblage of ganglionic centres interposed between the cerebrum and the spinal cord, as, on the one hand, the centres of sensation (and probably also of the consciousness of the cerebral operations, as well as of impressions on the organs of sense), and, on the other, as forming the summit of the apparatus from which motions are directly excited, we cannot but think that they are the parts of the encephalon *primarily* affected, and that the affection of the hemispheres is secondary. For all that Dr. Todd adduces in regard to the premonitory sensations is best explained on this view; and it is in singular harmony with the fact, that whilst loss of consciousness and convulsive movements are usually combined in the epileptic paroxysm,—the morbid action radiating upwards into the cerebrum, and downwards into the motor apparatus,*—either may occur independently of the other. The loss of *consciousness* is evidently the primary and essential phenomenon; the disturbance of the *intellectual* functions is obviously secondary and accidental.

The precise locality of the primary morbid affection, however, is a question to be determined chiefly on physiological considerations; and must be admitted to be of quite secondary importance to that of the intrinsic nature of the affection and the means of removing it, which is extremely well discussed by Dr. Todd. He dismisses summarily the idea of the inflammatory nature of epilepsy, and shows no favour to that of congestion, the presence of which as a post-mortem phenomenon he justly looks upon as a mere accident, resulting from the mode of death. On the other hand, he affirms, as a direct induction from extended experience, that a state the opposite to congestion,—that, namely, of anæmia,—is favorable to the occurrence of epilepsy; the convulsions of children, also, and those of lying-in women, being frequently attributable to the same condition, brought on by imperfect nutrition in the former, and by excessive floodings in the latter. In reference to Dr. M. Hall's ingenious theory, that the epileptic paroxysm is due to spasmodic "contraction of certain muscles of the neck," producing "compression of the veins and congestion of the cerebrum, with cerebral symptoms," Dr. Todd remarks, in the first place, that it is quite contrary to reason and experience to attribute the epileptic paroxysm to simple congestion of the cerebral vessels: we are disposed to think, however, that Dr. M. Hall only meant to impute to this cause the proper "cerebral symptoms" (as he terms them), that is, the primary insensibility, and the consecutive loss of intellectual and voluntary power; his idea being, that the disease is essentially *spinal*, and only affects the cerebrum by thus producing cerebral congestion. Dr. Todd goes on to dispute, on anatomical grounds, the possibility of the compression of the veins of the neck by contraction of the platysma or other muscles. And he entirely denies that the *laryngismus*, which Dr. M. Hall affirms to be the next in order of sequence, necessarily precedes the other symptoms, or can of itself occasion general convulsive actions. On the first of these points he remarks very truly, that all muscles are equally exposed to the cause which excites the paroxysm; and that, although we sometimes find that one set of muscles will take precedence of another in convulsions, there is no constant rule to determine what muscle shall be first convulsed, —that precedence certainly *not* belonging to the laryngeal muscles. Moreover, he has experimentally ascertained that the phenomena of artificial epilepsy, induced by hydrocyanic acid, occur in the usual manner when an opening has been made in the trachea, so as to allow the respiratory actions to take place without hinderance from the closure of the glottis. He does not, however, allude to the fact, which ought not to be lost sight of in the discussion, that an epileptiform condition is unquestionably induced by simple asphyxia, especially by strangulation, which augments the congestion of the encephalic vessels. The insensibility and violent convulsive movements, which are characteristic of the advanced stage of this condition, are truly epileptic; and death takes place under conditions essentially the same. Dr. M. Hall seems to have built his hypothesis mainly upon this coincidence; but we cannot see any proof that the sequence of phenomena is such as he has described it,—on the contrary, there are many indications of its being otherwise; and we believe that the neuropathic phenomena of asphyxia are more attributable to the poisoning of the blood by carbonic acid, and to the small supply of it transmitted by the arteries, than they are to venous congestion.

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* If Dr. Todd's former assertion be true, that no nerves terminate in the corpora quadrigemina, we are rather at a loss to understand how irritation of their substance can excite convulsive movements, except through the intermediation of the spinal cord or medulla oblongata. Our own opinion has been already stated, that as they are the centres of sensory nerves, so do they give origin to motor fibres.

That an insufficient supply of blood to the brain may be the immediate occasion of epileptic paroxysms, was fully established by the experiments of Sir A. Cooper, which. indeed, are confirmed by daily experience in the slaughtering of animals; and we trace in these experiments some confirmation of the views we have expressed as to the primary seat of epilepsy. For Sir A. Cooper remarked that compression of the vertebrals had a much greater tendency to produce insensibility and convulsions, than pressure on the carotids,—a difference which Dr. Todd thinks he has explained, by remarking that "a considerable portion of the blood of the carotids is distributed to the external parts, to the membranes, and to the parietes of the cranium, those branches which supply the brain anastomosing very freely with the vertebral arteries." Now the fact we take to be this; that the blood of the carotids is chiefly distributed, through the membranes, to the gray matter of the hemispherical or cerebral ganglia; whilst the sensory ganglia at the base are more particularly supplied by the vertebrals. Hence, we should anticipate that compression of the latter would operate more directly than that of the former upon the sensory ganglia, producing loss of consciousness and convulsive movements.—However this may be, we cannot but feel that the general fact tells strongly in favour of the correctness of the induction from clinical observation, that deficiency in the quantity of blood or of its staminal principles is at any rate a powerful predisposing cause of epilepsy, this state being capable of itself of producing the paroxysm, if it exist in sufficient intensity, That it is not itself the ordinary cause of epilepsy, however, is sufficiently evident from the fact, that epilepsy frequently occurs without any indication of the anæmic state; and its influence must therefore be looked for in the disturbance of the nutrition of the brain which it will be likely to induce.—The opposite condition of venous congestion, on the other hand, seems to have a much greater tendency to produce simple coma than epileptic convulsion, as we see in cases of prolonged and severe dyspnœa, occasioned by chronic bronchitis or other diseases, which obstruct the aeration of the blood and impede its return to the heart.

Having thus discussed the more obvious disturbances of the circulation of the brain, which have been and are set down as productive of the epilepitic state, Dr. Todd proceeds to develope his own theory of epilepsy. This we should gladly give entirely in his own words, if the statement of it were not too long for quotation; but the following will, we believe, convey a faithful account of it. The epileptic paroxysm is the manifestation of a state of abnormal nutrition of certain parts of the brain, which shows itself in an undue development of their nervous force, or, to use Dr. Todd's language, in a disturbance of their polar state; and this, when it has attained a certain measure of intensity, manifests itself in the epileptic paroxysm, just as a Leyden jar, when charged with electricity to a certain state of tension, gets rid of the disturbance by the "disruptive discharge." This state of tension of the brain he regards as resulting from "the accumulation of some material in the blood, which, acting on the brain as a poison, excites this polar state, and this disruptive discharge, and so escapes from the system, leaving the brain free from disturbance, until a fresh accumulation excites a new paroxysm." The infinite variety in the character and violence of the epileptic fits would be accounted for on this view, by variety in the quantity of the morbid material which contaminates the blood, and the different intensity with which it affects one part more than another. In support of this humoral doctrine of epilepsy he adduces the following classes of facts. 1. The influence of certain toxic agents in producing artificial epilepsy. 2. The frequent connexion between epileptic convulsions and imperfect eliminatory action of the kidney. 3. The correspondence between the paroxysmal character of epilepsy and that of other diseases confessedly humoral, such as ague and gout. 4. The fact that the introduction of certain animal poisons (as those of the exanthemata or of typhus) into the system, may produce epileptic convulsions.—Of the *nature* of the morbid matter, we can at present only form somewhat vague conjectures. Of its *sources*, however, it is not difficult to frame a more definite idea; since we most frequently find epilepsy to be connected with obviously-disordered nutrition of some important organ, the most common source being the brain itself. Undue exhaustion of the nervous power by anxiety, grief, long-continued thought, masturbation, immoderate sexual intercourse, violent passions, habits of intemperance, or by a sudden shock, directly tend to impair the nutrition of the cerebral matter, and these are among the most frequent causes of epilepsy.

> "No doubt, however, there may be other sources of contamination—the digestive organs, the sexual organs, the great glands—which may not only generate morbid matters capable of contaminating the blood, but may, by the imperfect performance of their functions, weaken or otherwise damage the nutrient changes of the nervous matter, so as to make it more susceptible of the influence of any noxious agent, or to cause it to generate a morbid matter."

Now upon this theory we have to remark, that it seems to us rather unnecessarily complicated For if we understand Dr. Todd aright, the various mental and physical causes to which the epileptic condition is so frequently traceable, operate in the first instance by producing disordered nutrition of the brain; by this disordered nutrition a morbid product is generated, which contaminates the blood; and this, acting on the brain as a poison, excites the polar state, and the disruptive discharge. Or the toxic agent may be introduced into the blood, in consequence of the disordered condition of some remote organ. Now here we seem to have *two* causes assigned, when one would seem to be enough. Dr. Todd likens the brain to a galvanic battery, of which the blood is the exciting fluid; but he seems to forget that the blood is also the nutrient fluid, out of which the solid part of the battery makes itself. We seem entitled to refer the disordered function *either* to a disorder of nutrition, *or* to an abnormal condition of the exciting fluid; but it does not seem to us that *both* are necessary to account for the effects. We are accustomed to consider, in every other case, that we have sufficiently accounted for the perverted function of an organ, when we can attribute this to abnormal nutrition; and if it be true that the various causes enumerated by Dr. Todd *primarily* affect the nutrition of the brain, it does not seem to us requisite to suppose that, as a secondary consequence, a toxic agent is generated, which deranges its functions. The influence of disordered conditions of other organs is as likely to induce impaired nutrition of the brain by a general depravation of the blood, as to occasion irregular excitement by introducing into it a specific toxic element. On the other hand, if we believe the blood to be chiefly in fault, it does not seem to us requisite to suppose that it becomes so, in the first instance, by imperfect or perverted nutrition of the brain, even when its condition is the result of mental agencies; for every one must admit that these agencies can operate upon the blood long before they have had time to induce perverted nutrition of the brain, as we see in the immediate influence of mental emotions upon the chemical nature of the secretions. On the purely humoral hypothesis, then, the disordered state of the blood will be in all instances the immediate cause of the epileptic paroxysm; and this may result from a great variety of causes, mental or physical, without the *nutrition* of the brain being necessarily affected. It does not seem to us improbable that, as in the case of insanity, both views may be correct; the perturbed action being directly attributable, in some instances, to the disordered state of the solids resulting from imperfect nutrition; and this being sometimes consequent upon causes affecting the organ itself, whilst in other cases it proceeds from an impoverished or depraved condition of the blood; whilst, again, it may be the result of the introduction of a toxic substance into the blood, which thus excites irregular actions without any previous disorder of nutrition, as in the epilepsy artificially induced by hydrocyanic acid. Or, again, both causes may concur, the brain being rendered unduly excitable by imperfect nutrition, so that a much smaller dose of the poison is requisite to produce the effect. This last mode, indeed, is distinctly indicated by Dr. Todd in the passage which we just now quoted; and we think it likely to be the one in most general operation.

Dr. Todd questions the validity of the distinction between centric and excentric epilepsy, on the ground that there is no evidence that irritation of the peripheral nerves can produce the latter, without a disordered state of the nervous centres. Thus, in the generally admitted case of the connexion between epilepsy and worms in the intestinal canal, and the cure of the epilepsy by the expulsion of the worms, he attributes the epilepsy, not so much to the pressure of the worms, as to the disturbance of nutrition which first favored their residence, and which is kept up and increased by it. So he considers that tumours or injuries of the brain or brain-case can only be the cause of epilepsy, when they produce, or are accompanied by, a disordered state of the general nutrition.

The last question discussed in these lectures is the treatment of epilepsy, on which Dr. Todd does not profess himself able to throw much new light. He dwells upon the difficulty we have in recognizing the effects of anti-epileptic remedies; most of them not producing any sensible effects upon any of the great functions of the body; and the changes in the course of the disease during their administration being frequently such as mere coincidence will account for. He thinks that a good deal of reliance may be placed on the convictions of patients themselves, as to the good or bad effects of particular remedies; at any rate, the moral effect of a patient's confidence in any plan of treatment is a point of special importance. He does not think that we ought to abandon the search for a specific remedy for epilepsy; and is disposed to give a fair trial to the last new medicine, the juice of the cotyledon umbilicatus, to whose virtues several experienced practitioners have recently borne testimony. Of course, his idea of the humoral origin of the disease leads him to attach considerable importance to general treatment,—medical, hygienic and moral; and he thinks it of great importance to find some means of preventing the access of the fits, with a view to breaking the habit of their frequent periodical recurrence. For effecting this last purpose, he has had recourse to chloroform, and with very satisfactory results; but he urges the necessity of attending to the following careful precautions in its administration:

> "One cardinal point is, that in its administration atmospheric air should be at the same time allowed to be freely inhaled; another point is, that the administrator should not be eager to obtain a rapid effect, although he should aim at obtaining a full effect; a third, that the recipient should always be placed, during the administration of the vapour, in the horizontal posture; and lastly, the practitioner should abstain from administering it in feeble cases, where the heart is diseased or feeble, and the circulation languid or otherwise disturbed; and in all cases he should bear in mind that chloroform is a very depressing agent, and he should provide accordingly." (Lecture iii, p. 846.)

We have thus followed Dr. Todd through his exposition of the humoral theory of convulsive diseases; and our readers will have perceived, from the remarks we have offered from time to time, that, although differing from Dr. Todd upon some points of detail, we are inclined to accept his theory as a whole, and to regard it as an important step towards a right comprehension of this very serious class of maladies. There are two forms of convulsive disease, however, to which he does not make the least allusion, and from the phenomena of which we think that he might have drawn some important inferences in support of his position; these are, Hydrophobia and Hysteria.—In *hydrophobia* we cannot but recognise a purely humoral disease. A poison is introduced into the blood, and may remain latent there for days, weeks, and months; but when it does take effect, it is obviously by contaminating the blood, as (to use Dr Todd's phraseology) the exciting fluid of the nervous battery, rather than as the nutrient pabulum. The mode in which the symptoms come on, and the rapidity with which they are developed after the first manifestation of them, seem distinctly to prove this. There is no reason whatever to suppose that there has been any previous perversion of nutrition; and no morbid appearances indicate the occurrence of any recognisable changes in the nervous centres during the course of the malady. The phenomena of this disease seem to us clearly to indicate an extreme excitement of the upper portion of the automatic centres, namely, the sensory ganglia and the medulla oblongata; this excitement having a tendency to radiate downwards, rather than upwards, so that the cerebrum remains unaffected. In fact, the extraordinary acuteness of certain sensations, and the excitement of convulsive movements by those of the *special* kind, whilst the intellectual powers remain completely undisturbed, which are the characteristic signs of this terrible disease, appear to us almost inexplicable on Dr. Todd's doctrine that the cerebrum is the seat of sensation as well as of intellectual operations, whilst it does not give off any motor nerves. On the other hand, as shown in the article to which we have already referred, these phenomena harmonise beautifully with the notion, that the sensory ganglia constitute the highest portion of the automatic apparatus; that the convulsive movements directly proceed from them; and that they may be excited by the stimulus of a sensation directly derived from an organ of sense, or by that of an idea or remembered sensation transmitted downwards from the cerebrum. We can scarcely imagine that the idea of the humoral nature of hydrophobia has escaped Dr. Todd's mind; and we presume that he either thought that every one else must be familiar with it (in which case he neglected to avail himself of a powerful argument from analogy), or that he felt himself obliged to exclude it by the limitation of his course to three lectures.

All the arguments which Dr. Todd has drawn in support of the humoral origin of chorea, tetanus, and epilepsy, from the absence of structural lesions, and the influence of causes affecting the general state of nutrition, tells with yet greater force upon the *hysterical* forms of convulsion—those strange manifestations of disordered excitement of the nervous centres, which baffle the sagacity of the best pathologist to account for satisfactorily, and that of the most skilful practitioner to cure. It is well known that chorea, tetanus, epilepsy, and paralysis, may occur as symptoms merely of the general hysteric condition; and the absence of any structural lesion, or even of any seriously-disordered nutrition of the parts of the nervous centres which are the sources of the actions in question, is proved by the length of time during which the severest forms of them may exist without permanently serious consequences, and by the suddenness with which the several forms of them give place one to another, or pass off altogether. The strange combinations, moreover, which they occasionally present, remarkably distinguish them from the more settled forms of the diseases which they simulate. Thus we have known an obstinate case of this kind, in which at one time attacks of the most complete opisthotonos coexisted with perfect insensibility; at another time the insensibility recurred alone; then, again, there was trismus, lasting for five consecutive days, without any other spasmodic action or loss of sensibility; this sometimes alternated with fits of yawning, in which the jaw was held open for half an hour or more; at another period the convulsions had more of the epileptic character, the face being distorted and the limbs agitated, concurrently with insensibility, but without laryngismus; and with this alternated fits of laryngismus without insensibility, and occurring during the expiratory movement; whilst during the whole of this succession there was paralysis of the extensor muscles of the lower extremities, with paroxysms of the most violent and prolonged cramp in one of them. We do not remember to have heard or read of a stranger variety of spasmodic actions than this, as occurring in the same individual: the mental phenomena were almost equally strange; a state of almost maniacal excitement often suddenly coming on, and ceasing as suddenly; and every form of double consciousness, from simple sleep-waking to an alternation of two very similar states of mental existence, developing itself at one period after the same fashion.

We have not been able to imagine any other rational explanation of such symptoms, than a disordered condition of the blood, the exciting fluid of the nervous battery; and although we usually find that toxic agents affecting the nervous system are restricted in their action to one or another division of the cerebro-spinal centres, yet it is not difficult to suppose that some kind of morbific matter may affect *any* part to which it may be specially determined; in fact, considering the similarity in structure and in chemical character between different parts of the nervous centres, the wonder is rather that strychnia should fix so exclusively upon one, hydrocyanic acid upon another, and so on. The clinical history of hysteric convulsion, then, would lead us to imagine that it results from the existence of some morbid matter in the blood, capable of exciting undue and irregular activity of all parts of the nervous centres, but not tending to produce a permanent disorder of their nutrition. Now if we look for the source of this morbid matter, we seem to be directed by the other symptoms towards the sexual apparatus; for although we are not, perhaps, justified in saying that a disorder of the nutritive or secretory functions of this part is essential to the production of the hysteric condition, yet we believe that in all the severest forms of it, the ovarian or uterine functions are imperfectly performed, and that the restoration of their healthful activity is a main point in its cure. Even where mental emotions appear to be the immediate cause of the affection, these emotions are of a nature to affect the due performance of the reproductive functions; and it is well known that the favorable excitement of these same emotions is one of the most valuable means of cure, when it can be judiciously brought about. In the case to which we just now alluded, it was clear that the disorder originated in the disappointment of affections long cherished in secret, although it was doubtless aggravated by anxiety and over-exertion of the intellect; and the influence of a very determined will, in keeping off for a time its first access, was equally apparent. The malady resisted every kind of treatment for more than four years; the catamenial discharge remaining very scanty during the whole of that time, and sometimes being absent altogether; and the recurrence of the period being almost invariably marked by an aggravation of the spasmodic attacks, and frequently by pains resembling those of the first stage of labour. A slow and almost imperceptible improvement was taking place, when circumstances occurred to give a new turn to the feelings; a new attachment was formed, which was happily reciprocated; and from that time the cure rapidly advanced, the convulsive and paraplegic affections being speedily recovered from, and nothing being left but dysmenorrhœa, which we have since had reason to regard as dependent upon mechanical causes. It is worthy of notice, that in this case there was an hereditary predisposition to gout, which seemed once to manifest itself in a peculiar affection of the tissues about the wrist-joint, of a character more gouty than rheumatic; in this respect confirming the views advanced by Dr. Laycock, in his work on the 'Nervous Diseases of Women,' as to the connexion between gout and hysteria.

It is due to Dr. Laycock, also, that we should state that he distinctly advocated, in the work just referred to, the doctrine of the humoral origin, not merely of hysterical, but of many other forms of convulsive disease, to which he gave the significant term *neuræmic.* We do not know how far Dr. Todd regards himself as original in the enunciation of this doctrine; but we judge from his exposition of it, that he is scarcely aware of the extent to which he has been anticipated by Dr. Laycock. We make these remarks in no captious spirit, but simply because we think it right that in bringing the probability of the humoral origin of convulsive diseases prominently under the notice of our readers, we should not omit to point out that the doctrine was originally promulgated by a sagacious inquirer, at a time when the humoral pathology was not quite so fashionable as it has since become.

We now turn to Dr. Gull's Lectures, which contain matter equally worthy of consideration in regard to the pathology of the Spinal Cord. The first lecture, however, is chiefly devoted to an examination into its physiology; as to which Dr. Gull is a follower of Dr. Todd, rather than of Dr. M. Hall, believing that there is no real distinction between cerebral and spinal fibres, but that the muscular system is supplied from one source only, that source being the spinal cord. One of the arguments which he adduces in support of this view, and against the theory of the "distinct system," is worthy of special notice.

> "Another objection, which has seemed to me pressing against the theory of a volitional and an excito-motor set of fibres, arises from the power we have over these automatic movements. Take, for instance, the respiratory movements; we can arrest them at will; and in this we find a dilemma,—for, if we assume that the volition acts directly upon the muscles, the influence so sent to them *can be no other than a stimulus;* and if we cut off the stimulus of volition by a negation, we leave the muscles acted upon by the reflected irritation from the cord, which is powerful enough to excite them: hence they would continue to contract, and the volition would be powerless to stop them. But, if it be admitted, that the centre of volition can act directly upon the spinal centres, arresting the course of the impression from the incident to the motor nerves, then we can readily understand the manner in which we arrest the movements; but then the volitional fibres

running from the brain to the muscles are *unnecessary;* for, if we can excite the muscles by acting directly upon the centres of the spinal cord with which they are connected, there can be no necessity for a double set." (Lecture i, p. 371.)

Dr. Gull's opinions are in full accordance with those which we have already expressed, with regard to the indirect mode in which the will acts upon the muscles. He considers the spinal cord as made up of a number of distinct centres, each acting upon its own group of muscles, and each called into operation by the agency of the will transmitted from the cerebrum. This view is the one which harmonises best with the facts of comparative anatomy; for in the invertebrated animals such centres have obviously a separate existence; and we may frequently recognise them in vertebrated animals, by the peculiar distribution of the nerves proceeding from them, which can only be accounted for on the idea of their proceeding from such centres, and being destined to associate together particular groups of muscles in certain combined actions. "All considerations of the mode in which we use the muscles," says Dr. Gull, "and of the power we have over them, would lead to the conclusion that the nerves are arranged into centres, and that we act upon these by our volition, rather than upon the muscles individually or directly." And this view he further supports by the following considerations relative to the anatomy and uses of the plexuses:

> "It has commonly been said, that a plexus of nerves consists in an interchange of fibres of sensation and motion, for the purpose of transmitting the sensitive to the skin and the motor fibres to the muscles; and it is a curious anatomical fact, that the nerve which supplies the muscles, supplies, for the most part, the skin over the muscle, according to Mr. Hilton's dissections. Dr. Todd hints at the general use of a plexus for motion, but by no means developes his idea respecting it. Reverting again to the kind of power we have over the muscles, and the fact that plexuses are complicated in relation to the variety of movements of the parts supplied by the nerves subsequently sent off from them, it would seem that the use of a plexus is to bring the different segments of the cord into relation *with groups of muscles*. Thus, let A B C D represent so many segments of the cord, A being in connexion with one group of muscles, B with another, and the same with C and D; by acting upon the centre A we get a result corresponding to its connexions,—we can conjoin it with B, or C, or D, or with any one or all of these, and get so many and so varied movements, as, for example, flexion with supination, equable throughout the entire act of flexion, or supination first and then flexion, or flexion first and then supination, and so with every other possible muscular movement, by conjoining the various segments, and acting upon them in different times, as we should play on the keys of an instrument
>
> "A plexus, therefore, must be regarded as a necessary part of the segmental symmetry of the cord,—a necessary coudition for combination and arrangement, although, on the hypothesis of our acting directly upon the muscles, one can see no necessity for such an intercommunication of the roots.
>
> "As confirming this view of the use of a plexus, I may refer to the paralysing effects of injury of one of the roots of a plexus. If a nerve be divided before entering a plexus, we do not produce paralysis of any one muscle, but a general diminution of power in the whole." (Lecture i, p. 372.)

Another suggestion is offered by him, in regard to the possible existence, in the fœtus, of a relatively higher degree of spinal excitability than that which exists in the adult; this suggestion appears to us well worthy of consideration, especially in reference to Dr. Simpson's views (to which we shall take another opportunity of directing our readers' attention) on the means by which the position of the fœtus in utero is determined; and it harmonises well with the relative history of the embryonic development of the spinal cord and of the cerebrum. For the spinal cord (using that term in its more extended sense, to include the sensory ganglia at its upper extremity) attains a considerable degree of development before the cerebral hemispheres begin to be evolved; and it always remains relatively in advance of them, up to the termination of embryonic life, at which time the cerebrum first comes into activity. Now, as we have already seen, the excitability of the cord is always more remarkably manifested in the adult, in proportion as the influence of the cerebrum is withdrawn; and it is easy to see, therefore, that this excitability might be expected to show itself prominently, when the cerebrum is not yet in a condition to control or direct the automatic movements. But, as Dr. Gull points out, the histological condition of the cord is not improbably itself such, as to endow it in the embryonic state with a greater degree of excitability than it may afterwards possess; and he adduces a fact of some interest, as affording analogical confirmation of this doctrine.

> "If it be true, that the tissues in their development pass through phases of lower organic forms, we may expect the same independence of action to be coincident with these transitory conditions, as is found in those permanent states. I had a striking confirmation of this principle in the heart of a fœtus of the fourth month. It was expelled prematurely about five o'clock one summer's afternoon, and, at eight o'clock in the evening, I proceeded to open the thorax, in order to inject the minute terminations of the bronchial tubes, and, to my surprise, I found the heart to possess some irritability; it contracted on being pricked with a needle, after the manner of a fish's or reptile's heart, when it has become so exhausted as to have lost its rythmic movements. This muscular irritability was like that of the cold-blooded animals; nor can we doubt that its spinal segments had the same relations." (Lecture i, p. 391.)

At the conclusion of his first lecture, Dr. Gull states his entire dissent from the doctrine of Sir C. Bell as to the functions of the columns of the spinal cord; affirming, chiefly on the data furnished by the results of local lesion, that what is undoubtedly true of the relative functions of the anterior and posterior roots of the nerves, does not hold good in regard to the columns which they respectively enter. With this conclusion we believe that most physiologists are now prepared to accord; at any rate, a gradual weakening of Sir C. Bell's position has been gradually effected; and we believe that it would now be difficult to adduce any very solid arguments in support of it.

After this physiological preface, Dr. Gull passes on in his second lecture to the consideration of *Paraplegia;* and has here presented the facts supplied by clinical observation in so novel and important a light, that we shall follow him through it in some detail. He thus meets *in limine* one of the objections which is too frequently urged against such attempts.

> "One of the great causes of our little advance in the study of nervous affections seems to me to have arisen from a tacit assumption that the phenomena were too uncertain and varying to admit of any general expression. Dr. Abercrombie seems to have striven to place, side by side, cases which should set at defiance all law, nor has he attempted to reconcile the discrepancies. But all will admit, that to rest satisfied with this would be to take too narrow a view of the subject, for here, as elsewhere, there can be nothing variable; the order and relation of the phenomena must be as definite as in the inorganic world, though the conditions may often be

> so complex and interwoven as to elude our explanation. What is true of one case must be equally true of another like it; yet this truism has hardly been admitted in nervous pathology. My endeavour, therefore, to establish some general laws, if fruitless, must still, I think, be in the right direction." (Lecture ii, p. 407.)

For ourselves, we feel so firm an assurance that the phenomena of nervous or any other kind of disease are exceptional only so long as we attempt to attest them by imperfect rules and endeavour to classify and combine them after a wrong system, that the very existence of a number of phenomena which we cannot include in our generalizations, is to our minds a sufficient indication that we are following a wrong method. Now this is the case with regard to all those attempts at the systematic arrangements of the phenomena of paralysis, and the connexion of particular symptoms with particular local lesions, which have been based upon Sir C. Bell's hypothesis as to the relative functions of the columns of the spinal cord; and we gladly welcome, therefore, any new attempt to group them, that shows a probability of a more successful issue.

Dr. Gull's inquiries lead him to distinguish three forms of Paraplegia, each dependent upon a lesion of a different kind, and each distinguished by symptoms of its own. The first of these is *Paraplegia resulting from lesion of the cord;* and he affirms in regard to this, that general paralysis of the parts below the injury may equally proceed from it, whether the lesion be confined either to the anterior or posterior columns, or extend through the entire substance of the cord; and that in either of these cases *there is greater loss of motion than of sensation*,—the sensation being frequently little if at all impaired, whilst the loss of motor power is complete,—which he considers to be almost invariably diagnostic of the spinal origin of paraplegia. In proof of this position, he cites a variety of examples of injury and diseases of the cord, in which the symptoms have been carefully narrated during life; including the well-known cases of Dr. Webster and Mr. Stanly, one related by Dr. W. Budd, and others recorded or quoted by Dr. Abercrombie; and he affirms that, after an attentive search, he cannot find any cases of uncomplicated pressure or disorganization of the cord, in which the loss of sensation preponderated, or in which there was simple loss of sensation. Dr. Gull adds the following as the confirmatory result of his own observations:

> "My attention has now for years been much given to *post-mortem* appearances; but I have not met with cases which controvert my position, nor are there amongst the numerous cases of lesion of the cord which are contained in the records of this Hospital, any which show that one part or column of the cord, when affected, is attended with anæthesia without loss of motion, though, as we have seen, the reverse often happens." (Lecture ii, p. 408.)

Dr. Gull remarks, however, that in paraplegia from disease about the spine, the nerves are not unfrequently implicated, near their junction with the cord; and thus we find, on a post-mortem examination, sufficient explanation of what, carelessly observed, might seem to destroy the validity of the distinction just laid down. Thus in the case of the Count de Lordat, cited by Dr. Abercrombie, a paralytic affection of the left arm followed an injury to the neck from a fall, and the opposite arm became numb. On a post-mortem examination, however, there was found, not only induration of the cord, but a compact and tendinous condition of the spinal nerves, owing to a thickening of their investing membranes ; such as was quite sufficient in itself to account for the anæsthesia.

Pursuing his inquiry, Dr. Gull next calls attention to those cases of paraplegia in which *the loss of sensation is greater than that of motion ;* and these, he remarks, so far from being anomalous or contradictory to the preceding, naturally arrange themselves into two distinct groups, according to the seat of the lesion, which may be either *peripheral* affecting the nerve-trunks in their course, or *central,* in which case it is encephalic instead of spinal. The former of these groups, constituting Dr. Gull's *second* class of paraplegic diseases,—those, namely, *with preponderating anæsthesia, arising from peripheral causes,*—has been especially noticed by Dr. Graves, who quotes, as one of the most remarkable examples of such peripheral affections, the *Epidemce de Paris* in the spring of 1828, which has been minutely described by Chomel, and which was witnessed and studied by Dr. Graves himself. This curious affection usually began with an extraordinary *exaltation* of the general sensibility, which gave place after a few days or even hours to a general *diminution* of senisbility, and this even proceeded to the extent of complete *abolition.* The power of motion also declined, but usually in a less degree, and rather subsequently to the loss of sensation than synchronously with it. In most instances recovery took place, though the paralysis was very capricious, vanishing and again reappearing. In some cases, however, the disease went on to a fatal termination ; and no lesion whatever of the nervous centres was discoverable. The symptoms were evidently referable to some general cause affecting the nutrition of the nerve-trunks in general ; and the malady had all the characters of a disease induced by the presence of some poisonous agent in the blood.—A case is related by Dr. Gull as having occurred in Guy's Hospital, in which a general numbness of the lower extremities, clearly traceable in the first instance to exposure to cold and damp, continued without any muscular weakness for seventeen years ; after which, under a repetition of the cause, the numbness extended to the upper extremities, and the power of motion became affected. Symptoms of ramollissement of the cord then supervened, and the patient died ; no post-mortem examination was made ; but we fully agree with Dr. Gull in considering that the history of the case affords unmistakeable evidence that the affection was here at first entirely peripheral. He cites another case of the same kind, narrated by Dr. Graves ; and adverts to the well-known influence of cold upon the nerves even of parts far removed from the seat of its direct application, as in sciatic from standing on cold stones. We quite agree with him that such peripheral affections of the nervous system may be the source of paraplegia ; but we scarcely think that he has as yet collected sufficient evidence, that the disturbance of sensibility in such cases is *always* antecedent to that of motor power.

Having thus shown that cases of paraplegia, with prevailing numbness, may arise from causes acting on the nerves themselves, Dr. Gull calls attention in the next place to a third class of paraplegic diseases, resulting from anxiety, mental depression, irregular practices, &c., which are attended with general diminution of the nervous, and especially of the encephalic force ; in these also, there is a greater proportional impairment of sensation than in spinal affections as was pointed out by Mr. Earle, in his valuable paper on Paraplegia; and the impairment of the power of voluntary motion is often in great degree attributable rather to the want of the guiding influence of sensation, than to any direct loss of motor power. The gait of such persons, as remarked by Mr. Earle, is very much that of a drunken man; and where the anæsthesia is complete, they are obliged to employ the visual sense as a substitute for the muscular. Thus, says Dr. Gull, " one patient told me he could not walk without looking at his feet, because he felt as if the legs were cut off below the knees; and another, because he had no apparent weight." The peculiar state of the sensation was especially noticed by Mr. Earle, who described it as imparting to the patient the idea of some foreign body, as a glove or stocking, being interposed between the object and the skin. With the numbness, there is yet the perception of pricking or pinching of the integuments; and the numbness generally terminates in an undefined manner about the elbows, and just above, or at the knees. There are frequently, moreover, affections of the special senses, as flashes of light, muscæ volitantes, dimness of vision, and noises in the ear; and one peculiarity noticed by Dr. Gull is, that the most moderate pressure on the nerves, as from lying on the arm in bed, or sitting upon the edge of a chair, will very speedily render the nerve completely anæsthetic. That the seat of this affection is encephalic, rather than spinal or peripheral, appears scarcely questionable; and that its cause is rather a disordered state of the general nutrition, than any special local lesion, such as may sometimes be discovered after death, appears equally probable. On this head Dr. Gull has some very sensible remarks.

"We are not at present in a condition to determine what is the precise state o the nervous system, arising from exhaustion of its energies. It is one which leaves no obvious changes behind it, although its results are often permanent. Losses in trade, reverses of fortune, depressing emotions, too much anxiety, too much study, and many similar causes, may so lessen the whole tone of the system, as to produce anæthesia with paraplegic weakness, and leave no change behind; or we find, as concomitants, sub-arachnoid and ventricular effusions, with wasting or other general alterations of the nervous substance.

" Although it cannot be denied, that a preponderating weakness of the lower extremities may arise from mere local affections in the encephalon, especially when affecting the parts in the neighbourhood of the spine, yet, as such cases follow the law of local central lesion, in which motion suffers more than sensation, already considered, I need not allude to them here, my object being to point out those cases which militate against this law, and to prove that they have an especial morbid anatomy, consisting, when any appearances are evident, of general and passive changes, of fulness of the larger venous trunks, watery effusions, with chronic and various general states of wasting, hardening or softening, of the nervous substance; changes which, though so seemingly opposite, may yet have the same result on the functions of the parts.

" There is good reason to believe, that many of these changes are *results rather than causes* of the loss of diminution of function. We know that we cannot interfere with the function of an organ without affecting its structure. If a duct be tied or obstructed, we get wasting or degeneration of the gland from which it comes, and I would venture to suggest, whether something similar may not occur in the nervous tissue. These cases of paraplegia having an encephalic origin, and characterised during life by prevailing anæsthesia, present to us *general* as opposed to *local* and *isolated* changes of structure, that is, provided there be any obvious appearances at all, which sometimes there are not." (p. 469.)

Dr. Gull seems inclined, however, to limit the disorder to the "mesencephalon," by which he implies, we presume, what *we* should call the sensory ganglia; but we doubt whether he is justified in this amount of localization. For it is pretty clear that exhaustion of *cerebral* power is generally its cause; and the disorder is usally manifested, not merely in the impairment of sensation, but in deficiency of mental vigour. The two following cases, narrated by Dr. Gull, are very characteristic of the disease, which he appropriately terms *encephalic paraplegia:*

"Henry Chambers, aged 53, was admitted into Guy's, with the following history and symptoms:—He is tall and of a spare frame, large well-formed head; attributes his present condition to losses in business, and to irregularities, although of late he has been less dissipated. He has great weakness of memory. There is so much affection of the nerves of common sensation, that in walking he does not seem to touch the ground, and the legs are so weak and faltering, that it is with the greatest difficulty that he can support himself a few steps with a stick. He says he feels without weight, and finds it difficult to keep himself on the ground, for he seems to have a greater tendency to fly than to walk, though, indeed, he can effect the latter but a few steps only. The hands and forearms are also affected with numbness, especially the former, and there is weakness and awkwardness of movement, but less than of the legs. He can retain or pass at will the urine and fæces, but there is some diminution of power; urine pale, large in quantity. The vision is impaired. Heat and cold are oppressive. Twilight is more agreeable than full daylight, which is too exciting, and leavas him with less command over his movements. If he attemps to read, the letters soon become confused. His memory is defective, his few weeks' residence in the hospital seeming to him a lifetime. Various tonics, as zinc, iron, shower-bath, electricity, were employed without any good result, and he remains much in the same condition.

"Sarah Staples, aged 30. In the autumn of 1845, whilst residing in Italy, where she had been for five years, began to complain of languor and indisposition to exertion, which she attributes to sedentary habits. The attack began by a feeling of numbness in the left leg and right arm; also the vision of the left eye was impaired; in a short time the other extremities became similarly affected. At this time she could walk and grasp firmly, but could only imperfectly feel the floor, or tell when she held anything in her hand. After her return to England, which was in the spring following the autumn in which she was attacked, she became much worse, and was confined to her bed for five months. Galvanism in the course of the lower limbs restored her. She was then obliged to gain her livelihood by close application to her needle, and her present state is very unfavorable. I have watched her for a year. About two months since (two years from beginning of attack) her speech became faltering, and her eyesight very dim; the right arm and the left leg are the worst, the left arm being not greatly affected; still there is some numbness in the fingers, especially in the tips of the middle and ring-finger. In attempting to walk, which she can do with slowness and caution, she has no sensation of touching the ground, but seems to tread on nothing. There is considerable impairmeut of sensation up to the knee, as if some soft and thick substance was covering the surface; above the knees the sensation is good. The middle and ring fingers of each hand are more numb than the others, and the palm more than the back of the hand; the numbness extends to the elbows. She has power over bladder and rectum.—The various remedies employed have not had any very decided effect. They have consisted of tonics and rest, with counter-irritants." (Lecture ii, p. 469.)

In papralegic affections, then, in which anæsthesia prevails over loss of power, we must not expect (according to Dr. Gull) to find a local and circumscribed lesion of the spinal cord; but we must examine whether there be any probability of diseased action in the peripheral portion of the nervous system, or whether there are indications of the encephalic origin of the disorder. Between these two, the history of the case will seldom leave us much difficulty in deciding.—There is another form of paraplegia, however, of which several cases have been recorded, and of which five examples have fallen under Dr. Gull's own notice; this, to which he gives the designation of *cervical paraplegia,* particularly manifests itself in the upper extremities, the legs being sometimes not in any degree affected, whilst they are always much less so than the arms. The muscles of the shoulder and upper arm are at first implicated, and often alone affected. The disease may begin in both extremities at the same time; or, having begun on one side, may gradually pass across and affect the other. At the onset there may be pain and soreness of the muscles; but after the disease has existed for some time, there is no obvious modification of the sensation. From a careful comparison of the phenomena, Dr. Gull comes to the conclusion, in which we believe him to be perfectly justified by the evidence he adduces, that the disease commences in the *muscular* structure, and that the affection of the nerves is secondary. The following is his view of the nature of the disease:

> "The paralytic affection illustrated by these cases is peculiar. The muscles of the shoulder and elbow are much more affected than those of the fore-arm. The paralysis may be limited to the deltoid for a long time, and subsequently implicate other contiguous muscles. An arm, powerless in this particular affection, presents a remarkable contrast to the arm paralysed from apoplexy. In the former the fore-arm and the fingers are less affected than the parts above, whilst in the latter the reverse obtains. We have already seen that paralysis may arise from the centres, or from the nerves; but many of these cases here described show *a primary affection of the muscle;* others *both of the muscle and the nerve distributed to it:* in either case it is probable that the neurilema forms the medium through which the diseased action travels to affect adjacent muscles. A man aged 56 came under my notice for a wasting and weakness of the muscles which elevate the humerus; the muscles of the fore-arm were of their normal size and strength. The account he gave was that, thirteen months previous, he had fallen and struck his shoulder, but the blow gave him no anxiety, and its immediate effects soon disappeared; but, after a month, there came on very gradually weakness of the deltoid and of the muscles about the shoulder, supraspinatus, &c. After eight months the opposite side began to be similarly affected: *below the elbow the arms were quite healthy.* There were no spinal or cerebral symptoms. The head was clear, the legs strong. Dr. Darwall's cases are of a similar kind, and probably arose from the injury to the muscle by carrying heavy weights on the shoulder. We have also given above, examples of this muscular atrophy arising from cold and rheumatism, and one in which there was no obvious cause. Although I cannot venture to give an account of its exact pathology, yet may I express my belief that the muscular tissue is the primary seat of this disease. I have now a case under my care, in which I have been able to trace a continuous extension of the disease through the deltoid, beginning at its posterior edge. Soreness of the affected muscles is an early symptom; this, however, varies much, and is sometimes absent. The results of treatment also favour the same view. If taken early they seem very amenable to treatment, and especially to electricity. Darwall found acupuncture of the muscle arrest the disease. That paralysis may arise from primary affection of the motor organ, or muscle, there seems no reason to deny; and it is more than probable that, in considering the causes of paralysis, such a source has been often overlooked." (Lecture iii, p. 506.)

In reference to this subject, Dr. Gull draws attention, as other physiological physicians have done before him, to the importance of keeping the *muscles* in exercise, in cases of temporary suspension of the functions of the nerve; lest by the time the functional power of the nerve has been restored, there may be no muscular fibre left for it to excite, the whole having wasted from disuse: and he narrates an interesting case, in which this result seems to have followed on some transient lesion of the seventh pair:

> "Some time since I met with an excellent illustration of this principle in the case of a woman admitted under the care of Dr. Addison. She had had paralysis of the seventh nerve for many years; the eye of the same side was permanently open, and the cheek flabby and fallen. She never had paralysis of any other part; had been subject to face-ache from bad teeth, and attributed the paralysis to this. There had never been any discharge from the ear, nor any obvious cause of injury to the nerve. She died from affection of the chest, for which she was admitted.
>
> "*Post Mortem.* The medulla oblongata and cerebellum were removed with care, but no disease of either could be detected. The seventh nerve of the affected side was traced from its origin to its distribution, through the whole of its osseous course. It was not apparently wasted, and when examined by the microscope, its tubules presented the usual appearance, and could be traced continuously. The muscles of the cheek were not distinguishable, no muscular fibre could be detected therein." (Lecture iii, p. 506.)

Dr. Gull then discusses the subject of *hemiplegia;* and here also attempts, with some success, to bring facts apparently exceptional and anomalous, under some comprehensive and consistent expression. With this view he first enunciates the following proposition, which the experience of most observers will probably lead them to admit as the general, though by no means the invariable truth:

> "If there be disorganization of the hemisphere, whether affecting the anterior or posterior lobe, and implicating the optic thalamus, or corpus striatum, singly or equally, if the lesion be of such an extent as to produce hemiplegia, *there will be a greater affection of the upper than of the lower extremity, and a greater loss of motion than of sensation;* and if the lesion has been sudden, and both the upper and lower extremities are completely paralysed, the leg will begin to improve before the arm, and the muscles nearest the trunk will regain their power first, that is, the deltoid and flexors of the elbow before the muscles which move the fingers. As regards sensation, it is sometimes abolished, as the intelligence also is for a few days following the attack, if the lesion has been sudden, but is soon recovered from; the mode of its restoration being, like the recovery of muscular power, *first in parts nearest the trunk,* the first in the leg." (Lecture iii, p. 507.)

Dr. Gull then goes on to assert, that the *seventh* nerve is subject, like the spinal nerves, to the law of "crossed" action; and that it is usually somewhat affected, though commonly to a less extent than nerves of the trunk. Now if his opinions are here correctly reported, we cannot regard them as correctly formed. For our own observation entirely accords with the statement of Burdach,* that, although the facial paralysis is more commonly "crossed," like that of the body, yet that the exceptions are too frequent to allow this to be stated as a rule. According to Burdach, out of 38 cases of cerebral lesion of one side, the muscles of the face were paralysed in 28 on the opposite side, in 10 on the same side.—So, again, Dr. Gull asserts that the *third* nerve is an exception to the law of decussating effects, and he gives in his First Lecture an elaborate apology for its being so; yet Burdach affirms that paralysis of the eyelid was in 6 cases on the same side with the lesion, in 5 on the opposite,—paralysis in the muscles of the eyeball in 8 cases on the same side, in 4 on the opposite,—and paralysis of the iris in 5 cases on the same side, and in 5 on the opposite. Dr. Gull states that the facts which have fallen beneath his own observation may be reduced to the following expression:

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* Quoted in Müller's Physiology, Baly's tra

1. Pupil largest on the side of the disease, vision being lost.
2. Eyes turned from the paralysed side.
3. Ptosis on the side opposite to the paralysis of the extremities and face.
4. Though no obvious affection of the iris or recti may exist, yet a patient may turn his eyes most readily from the affected side, and open the eye widest on the side of the paralysis.

Hence he concludes, that when the third nerve is affected, either slightly or considerably, in ordinary hemiplegia, it is the nerve of the *same* side with the lesion that suffers; whilst the paralysis of the facial and of the spinal nerves is *crossed.* Before such a rule can be established, however, it seems to us that a much larger collection of observations should be made, than Dr. Gull has been able to adduce; and that more than ordinary care should be taken in making such observations. We are, indeed, by no means sure that many of the supposed anomalies in recorded cases are not referable to errors of interpretation too gross for any competent observer to be suspected of; for we have occasionally met with practitioners, who partake of the vulgar error that the "drawing" of the mouth in cases of facial paralysis, indicates an affection of the nerve of the side *towards* which the mouth is drawn: and we know that, in deducing inferences from oblique protrusion of the tongue, errors are likely to be made, even by experienced pathologists. Notwithstanding that Dr. Gull may be disposed, on some such grounds as these, to attach little weight to such recorded observations as militate against the results of his own, yet he certainly ought, it seems to us, to have *noticed* the large collection of cases made by Burdach, before venturing to lay down any such propositions as those he has here advanced.—He next proceeds to consider the exceptional cases, which he ranks under the four following heads:

1. The leg is often more affected than the arm.
2. The seventh may be alone paralysed.
3. The third nerve is often alone, or to an extreme degree affected, and on the same side as the seventh.
4. The loss of sensation is often very much greater than the loss of motion.

With regard to the exceptional cases in which the leg is more severely affected than the arm, or does not recover so soon, Dr. Gull remarks that they may depend upon a complication of encephalic disease with disease of the cord, or from diseased action in the muscles or nerves of the paralysed member itself, or from hysteria or an allied condition. He has seen two cases of hemiplegia, in which the arm recovered before the leg, and in which *post-mortem* examination showed the disease to be at the inferior part of the posterior lobe of the cerebrum, neither the corpus striatum nor the thalamus opticus being implicated. He does not consider himself in a position to explain all the exceptional cases; but wherever such a departure from the general rule does occur, he would expect to find some special cause of paralysis affecting the lower extremity, in addition to general hemiplegic affection.

When the seventh nerve is alone affected, the causes producing the paralysis are, for the most part, as Dr. Gull correctly states, such as implicate the nerve in its course or at its immediate origin; this fact, as is well known, was first made out by the researches of Sir C. Bell. But Dr. Gull takes no notice whatever of the exceptional cases, which we feel assured from our own observation, as well as from Burdach's statements, are so numerous as scarcely to deserve being called exceptional, in which the paralysis of the facial nerve manifests itself on the side opposite to that of the body, and on the same side with the encephalic lesion.

So when the third nerve is alone affected, the causes producing the paralysis are for the most part, as Mr. France has shown, such as affect it in its course, or near its origin. The passage of this nerve through the cavernous sinus, in close apposition with the carotid artery,—together with the tendency of membranous inflammation to occur at the base of the brain, and of subarachnoid effusion to gravitate there, so as to occasion pressure upon the nerve prior to its exit from the cranium,—leave no great difficulty in accounting for the frequency of paralysis, partial or complete, of the third pair on one side. In fact, neither this form of paralysis, nor that of the seventh pair, existing by itself, can be properly regarded as affording even an apparent exception to the general law of hemiplegia; and we are surprised that Dr. Gull should have thought it requisite to dwell upon them at some length, whilst he passes altogether without notice those really exceptional cases, in which the paralysis of these nerves forms part of the general hemiplegic affection, but does not follow what Dr. Gull considers to be the ordinary law. The only purpose that a reference to them can serve, in classifying and generalizing the phenomena of hemiplegia, appears to us to be, that we are thus led to see, that, as in the cases in which the leg is more severely affected than the arm, there are likely to be some special causes affecting the nerves in their course, which modify the effects of the central lesion.

The most remarkable exceptions to the general law of hemispheric lesion are considered by Dr. Gull to be those in which the loss of sensation is greater than that of motion; and he thus classifies the conditions under which anæsthesia is prone to manifest itself.

1. Anæsthesia is produced by diseases of the blood; the effects of ether, chloroform, Bright's disease, and gout, supply us with examples.
2. Anæsthesia is said to arise from mental states, as in mesmerism; it certainly may be produced by nervous exhaustion, or by a shock, and often exists in hysteria. We observe it specially, *a*, as accompanying the shock of apoplexy, but generally not persistent; *b*, as part of the phenomena of epilepsy; *c*, as following venereal excesses, over-study, and liver derangements.
3. Anæsthesia forms a prominent symptom in one form of paraplegia.
4. Anæsthesia may be an affection of the peripheral nerves.

The first assertion, that anæsthesia may be the result of blood-diseases, is one which no true pathologist will now think of questioning.

"Modern discovery has supplied us with abundant proof of the anæsthetic effects of blood-diseases in the phenomena produced by the inhalation of ether and chloroform. Nor are we, I think, surprised that a patient should be able to move his limbs, to converse, and direct his eyes to various objects, to be, to a considerable extent, conscious, and yet that he should be quite unaware of the operations of the surgeon on the extremities at this same time, when we take into our consideration the extreme extent of nervous distribution in the tissues,—that the ether is permeating all these, and that the skin, from its rich supply, must be largely affected,—whilst, as I have often seen, by experiment on this subject, muscular contractility is not affected by the circulation of ether, nor even by immersion in it. It is, however, probable that when the anæsthetic effects are more circumscribed, there is, with these diseased conditions of the blood, some modification of nutrition." (Lecture iii, p. 564.)

Nevertheless the diagnosis is not always easy, the symptoms frequently bearing a strong resemblance to those of local lesion of the encephalon, as in an interesting case narrated by Dr. Gull. It is difficult to understand how anæsthesia resulting from blood-disease can be purely hemiplegic; but the fact appears to be unquestionable. In cases of saturnine intoxication, local anæsthesia is by no means an unfrequent occurrence; and this is often far from being symmetrical. It has also been observed in such cases, that loss of sensibility to pain is more widely diffused than loss of tactile sensibility; a fact of much interest in relation to the phenomena of etherization. Yet we seem by no means justified in concluding that hemiplegic anæsthesia, with little or no affection of the motor power, may not result from encephalic lesion.—We do not see why anæsthesia from Bright's disease should be set down in the first of the above orders, and anæsthesia from liver-disease in the second; surely in the latter malady, as in the former, the anæsthesia results from the accumulation of excrementitious matters in the blood, in consequence of the deficient or imperfect action of the organ appropriated to their elimination.

The second class of cases in which anæsthesia predominates over loss of motion are, according to Dr. Gull, "probably functional,—that is, essentially nervous, restricted to the nerves, not caused by a hyperæmia, or a local determination of blood, or a congestion of the blood-vessels, nor by impurity of the blood." We feel called upon to stop to express our dislike of the term "functional" disorder to express anything else than "disorder of function" as distinct from "structural change" We cannot believe that, in the present condition of pathological science, any one will seriously maintain that disorder of function can occur, without some antecedent disturbance of the conditions on which the normal performance of those functions is dependent. That disturbance may manifest itself in a structural change, but it must not the less exist when no structural change is visible; and in a great proportion of cases, the structural change is only itself a coexistent result of the primary disturbance, on which the functional perversion is directly dependent. Modern pathology has taught us that where we cannot detect change of structure in the organ, we may frequently obtain evidence of change of composition in the blood by which its function is excited; but this must have proceeded to a considerable extent, before it is detectible by our rude methods of analysis; and as we have more than once remarked, disordered nutrition of a tissue, or perverted action of an organ, may frequently be regarded as a test of such change of composition, to the full as legitimate as the results of a chemical analysis,—just as the muscular contraction in the leg of Matteuci's galvanoscopic frog indicates an electric current too faint to be detected by the ordinary galvanometer.—If by setting down a disease as "functional," therefore, it is meant that we cannot expect to learn anything more of its character than that which is indicated by its symptoms, we must regard the use of the term as positively injurious, because it tends to check inquiry; thus if it be thought that we give a sufficient account of the convulsive affections of hysteria by designating them as "functional," and we hence abstain from prosecuting the inquiry whether the peculiar excitability of the nervous system depends upon disordered nutrition of its tissue, or upon the presence of some morbid element in the blood, a most unphilosophical limit to our possible knowldge of the disease appears to us to be set. The only case in which, in our apprehension, the term functional disorder can be at all justified, is that in which there is a simple exhaustion or depression of functional power, resulting either from "shock," or from an antecedent excessive demand for functional activity, and requiring nothing but repose for its rectification. Of this condition, the following case of anæsthesia narrated by Dr. Gull, is an illustration:

> "About two years since I was one evening called in great haste to a gentleman well known to me. He is of thin, spare frame, about five feet six inches in height; active, and very excitable; nervous; has a multiplicity of duties to perform, and no repose in his disposition. It was about half-past seven in the evening, he told me, in great agitation, that he had lost the use of his right leg and arm; but, on investigation, I found he could forcibly throw forward the leg or the arm, but there was an awkwardness in directing their movements; the most prominent feature in his case being the anæsthesia; the awkwardness seeming to be the result of diminished sensation, so that he could not tell the whereabouts of the limb, rather than to arise from loss of power. This being totally opposed to the law of hemiplegia, I was disposed to regard it as functional, the result of nervous exhaustion, and prescribed nothing but a long and sound sleep. The following morning he was well." (Lecture iii, p. 564.)

But where repose does not at once restore the lost power, it is evident that there is disorder of nutrition, which requires time and other favorable conditions for its correction. Another case of anæsthesia cited by Dr. Gull is of this kind:

> "A gentleman recently married, and over-wrought by mental exercise, complained to me that he had just been seized with numbness of the right leg, and that, on attempting to walk, he found his gait very awkward, and he feared he was going to have an attack of paralysis. On inquiring, I found that the want of power over the muscles arose from the numbness, rather than from any absolute want of muscular power, and was an awkwardness rather than paralysis. Using, as we do, our muscles under the direction of sensation, this will be readily understood. Knowing his general condition, I advised vacuity, sleep, and a tonic, and all his symptoms soon disappeared." (Lecture iii, p. 564.)

Now if the warning had not been taken, in either of these two cases, and the individuals had persevered in their course of mental exertion in defiance of them, every pathologist knows that a more severe and permanent disturbance might be expected to follow at some future time; such disturbance then showing itself not merely in disordered function, but also in departure from the normal structure. But we cannot seldom regard the disordered function as even then dependent upon the obvious structural lesion, since it is so frequently antecedent to it; in fact we can only look at the two as the coincident results of a common cause—namely, a disordered state of nutrition, which in the first instance presents but a slight departure from the normal condition, such as the eye, even aided by the microscope, might not detect, but which, when permanently established, makes its consequences evident. It is wonderful to see what an amount of obvious structural change *may* take place without any abnormal functional manifestation; and we can only account for this by supposing that, notwithstanding the evidences of serious lesion, the *essential* conditions of functional activity have not yet been interfered with.

In cases of so-called "functional" anæsthesia, there are often strange vagaries occasioned by subjective sensations; thus Dr. Gull mentions one case in which a patient had a difficulty in getting off to sleep, in consequence of a strange creeping which came over the scalp and awoke him, just as he was losing consciousness; it was obviated by his wife watching him, as he fell off, and gently passing her hand over his head, so as by slight pressure on the nerves to drive away the subjective sensations.

Dr. Gull refers to the category of "functional" anæsthesia those cases of apoplexy in which there is paralysis on one side of the body and anæsthesia on the other; the paralysis depending upon lesion of the hemisphere, and following the law of hemiplegic paralysis; whilst the anæsthesia occurs without any lesion in the corresponding hemisphere, and appears to be functional, like the convulsions that sometimes occur in the side opposite to that of the paralysis, and to result from the "shock" of the apoplectic lesion.

Some other apparent anomalies are to be explained, as in the case of paraplegia, by referring the anæsthesia to an affection of the peripheral nerves; most commonly from exposure to cold in a heated state of the body, as in a case related by Dr. Yelloly, (Med.-Chir. Trans. vol. iii). He cites also, as affording support to his view, a case from Dr. Abercrombie, of a gentleman who had two attacks of a paralysis at a distance of eight months from each other, in the first of which there was perfect loss of feeling with only partial loss of motion, whilst in the second there was perfect loss of motion with only partial loss of feeling; from the first attack he recovered after a short time; but after the second, though he recovered partially, he continued to drag his leg, and after a year or two died of apoplexy. We presume, though Dr. Gull does not tell us so, that he regards the first attack as having been "functional," in accordance with his general view of the nature of hemiplegia, in which anæsthesia predominates, whilst the second depended upon some structural change; in our apprehension, however, there is likely to have been in the first instance a transient disorder of nutrition in some part of the encephalon, of which the anæsthesia was the consequence; and a subsequent more settled and permanent disorder, especially affecting the motor apparatus.

The anæsthetic affections ranked by Dr. Gull under his last category, are rather summarily disposed of; the following quotation including all that he says respecting them.

"I believe there is yet a source of many functional diseases of the nervous centres, which, in modern medicine, has been too much neglected. I refer to the interweaving of the sympathetic with the nerves, and, as we have reason to believe, entering into connexion with the nervous centres themselves. States of the brain produce functional disorders of the stomach and liver, and these in their turn produce strange nervous conditions: amongst the most important of which, to be here named, are numbness of the fingers or face, pain over the eyebrow, and in the occiput, partial paralysis of the retina, giving rise to hemiopia, or indistinctness of vision, with vertigo, all of which often vanish at once, by good exercise or an active purgative." (Lecture iii. p. 565.]

With regard to the normal functions of the sympathetic system, our knowledge is as yet far too slight to justify us in looking to it for any assistance in the explanation of the anomalous forms of paralysis; we should expect, however, that if it does exercise any influence, the manifestation of that influence in the cerebro-spinal system would be brought about by an alteration in its nutrition. On the other hand, the "functional" disorders in the encephalon, which Dr. Gull here seems inclined to connect as mere sympathetic disturbances with disorders of the stomach and liver, we should be much more disposed to regard as indicative of the presence of morbid matters in the blood, such as might be reasonably expected to arise from disorders of the digestive and secreting apparatus.

In bringing his lectures to a conclusion, Dr. Gull very properly apologizes for the imperfection of his attempt to solve some of the difficulties arising out of the variety of combinations in which the phenomena of nervous affection present themselves. His main purpose, he states, has been to direct careful attention to the degree in which sensation is affected in relation to paralysis of motion, as serving to inform us whether the disease be local or general, functional or organic; and if any good results accrue from this direction, as we feel assured will be the case, he will deserve all the merit of having given the suggestion. The good use which he has already made of the large field of clinical observation that lies open before him, affords the assurance that he will continue to follow up his pathological inquiries with no less assiduity than he has already displayed; and his acquaintance with comparative anatomy gives us reason to hope that he will be induced to adopt, as the guide of his inquiries, what we cannot but regard as a more precise view of the physiology of the encephalon than that which he appears to entertain at present.

In conclusion, we would express the gratification we experience at finding that the College of Physicians is not content with applying its various endowments to the delivery of lectures by men of the past generation, capable only of recapitulating what is already known; but that, emulous of the success of its sister institution, it summons to its lecture-table such of its younger and more active-minded members as have shown an aptitude for original investigation; from whom, if crude and hypothetical notions must occasionally be expected, yet somewhat suggestive and progressive may be looked for, which shall set their hearers to observe and inquire for themselves.

ART. II.

1. *Traité Théorique et Pratique des Maladies des Yeux.* Par. L. A. DESMARRES, M. D., Professeur de Clinique Ophthalmologique, &c. Avec 78 Figures intercalées dans le Texte.—*Paris*, 1847. 8vo, pp. 904.

Theoretical and Practical Treatise on the Diseases of the Eyes. By Dr. A. L. DESMARRES, Professor of Clinical Ophthalmology, &c.

2. *Die Operative Chirurgie von* JOHANN FRIEDRICH DIEFFENBACH. Zweiter Band.—*Leipzig*, 1848.

The Operative Surgery of J. F. DIEFFENBACH. Second Vol. (Chapters XCIV to CXX inclusive.)

We have now to direct the attention of our readers to the views of MM. Dieffenbach and Desmarres on the important subjects of the operations for Artificial Pupil, Cataract, and Strabismus.

Artificial pupil. Desmarres' chapter on this subject is illustrated by some good woodcuts, and Dieffenbach's is minute on practical points. They treat successively of simple incision of the iris, excision of a portion of the iris, separation of the iris from the ciliary zone, both through the cornea and sclerotic, drawing out and strangulating a portion of the iris either through the cornea or sclerotic; of a combination of the methods of incision and separation, of separation with excision; and of the after-treatment.

We shall first comment upon the opinions of Desmarres, and then make some additions from Dieffenbach. Desmarres says, with regard to the operation of incision:

> "The operation of Maunoir, so much praised by Scarpa, can only, in some cases of complete obliteration, find a useful application; it were better to excise the base of the flap and draw it out—that is to practise ordinary incision—than to confine one's self to a simple incision, or to one in the form of V. In some cases, where the pupil has closed after extraction or depression of the crystalline, incision might certainly be practised, if the iris presented a proper degree of tension; nevertheless excision seems to me, even in this case, to excel incision." (p. 438.)

We have always understood closure of the pupil from protrusion of the iris after extraction to be by far the best case for the operation of incision. The fibres of that part of the iris which is not adherent to the cornea being completely on the stretch, they are easily divided with Maunoir's scissors, and the artificial pupil, whether formed by one or two incisions, instantly expands. Incision seems exactly adapted for such a condition of the eye.

Separation is commonly performed through the cornea, and divides itself into the three periods of—1, incision of the cornea; 2, seizure of the edge of the iris with the hook, and its severance from the choroid; 3, prolapsus of the separated portion between the lips of the wound of the cornea. To these Dr. Desmarres adds excision of the prolapsed portion of the iris. Whether excision be thus superadded to separation or not, much depends on making the incision of the cornea at a due distance, neither too near to the edge of the cornea, behind which the artificial pupil is to be placed, nor too far away from it. If the incision be as near to the edge of the cornea as is represented in Dr. Desmarres' 18th figure, the pupil will be too small. The incision should always be at least as far from that part of the cornea behind which the artificial pupil is to be placed, as the centre of the cornea; if further than this, the pupil is apt to be too large.

For effecting the severance of the iris from the choroid, Dr. Desmarres employs a simple hook. Some use a slender pair of forceps.* Reisinger, for the same purpose, invented his hook-forceps. Any sort of forceps is a clumsy and inconvenient instrument with which to manipulate within the eye. They require too large an incision, to allow them to open sufficiently to lay hold of the substance to be extracted. One disadvantage of a simple hook is, that it is very apt to lose hold of the iris after it has seized it, or after the severance from the choroid is partly effected. We give a decided preference, therefore, to Schlagintweit's hook, which, while no bulkier than a simple hook, by means of a sliding pinch filled up the concavity of the hook, so fixes the piece of iris which is laid hold of that it cannot escape. This instrument is also much less apt to tear its way through the iris than the simple hook; a second, and no inconsiderable, advantage.

Dr. Desmarres states (p. 456) that it is indespensable for the operation of excision, that a part of the pupillary margin be free, though no more perhaps than just to permit the introduction of a fine hook. This is not the case. As we shall state more fully hereafter, neither Beer nor Gibson hesitated to perform excision when the whole pupillary edge was adherent to the cornea.

The incision of the cornea, which forms the first step in the operation of excision, being liable to be followed by an opaque cicatrice, which must impede the light in its passage towards the new pupil, Dr. Desmarres has frequently made the incision in the sclerotica, at the distance of $\frac{1}{13}$ to $\frac{1}{15}$ inch from the cornea, following, he says, in this procedure, the advice of Benedict and Guépin. When the incision is made in this situation, the knife is to be directed in such a way that the sclerotica is not divided perpendicularly to its thickness, but obliquely from behind forwards. In this way the knife, having penetrated through the sclerotica, slips between the iris and the cornea, and on into the anterior chamber. This puncture, which is exactly the first step of the operation of extraction through the sclerotica, proposed by Silvester O'Halloran,† can scarcely be made without wounding the choroid:

> "The incision in no way implicates the cornea, so that the artificial pupil, which is to be formed by the enlargement of what remains of the natural pupil, shall have the greatest extent possible, and the cornea, not having been wounded, shall not present, or at least shall not run the risk of presenting, an opacity at its circumference, caused by the very incision itself. One can understand all the advantage of this wound in the sclerotica, in those cases where the cornea already presents a very large opacity, and preserves its transparency only in a small extent. There is no harm in making the puncture of the sclerotica a little larger than we should make that of the cornea." (p. 458.)

We are not at all convinced that such a plan of operating could be accomplished without great difficulty and danger, and conceive it would be much better, in such a case as Dr. Desmarres describes, to perform the operation of separation.‡

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* Deval, Chirurgie Oculaire, p. 212. Paris, 1844.

† Transactions of the Royal Irish Academy for 1788, p. 139.

‡ There is an evident contradiction between the two following passages, regarding excision, or iridectomie, through the sclerotica: "Toutefois, je me hâte de le dire, la

Wherever the incision is made, whether in the cornea or in the sclerotica, Dr. Desmarres directs that a pair of forceps should be passed through the wound, with which to lay hold of the iris near its pupillary edge, a sufficient portion of the iris drawn forth, and snipped off with scissors. The wound, as represented in the doctor's figures, is too small for the easy application of forceps. He mentions that a hook, such as he uses for separation, should be kept in reserve, should the iris escape from the forceps. This must of course be a sharp hook, and with such the crystalline capsule might readily be injured. The blunt hook of Tyrrell, with a long bend, would be a much safer and more certain instrument.

Having discussed, at considerable length, the three common modes of forming an artificial pupil, Dr. Desmarres comes to what he calls the fourth method, namely, that by "*enclavement*," or permanent distension. This is not so much the formation of an artificial pupil, as a changing of the position of the natural pupil. It was first proposed by Sir William Adams, afterwards recommended by Himly, and its use greatly extended by Tyrrell. The operation consists in making a puncture at the edge of the cornea with a broad cataract-needle or narrow knife; and if no prolapsus of the iris follows, drawing out with a blunt hook a portion of the iris, and allowing it to remain strangulated in the puncture of the cornea. The operation, thus performed, is very simple, and is applicable not merely to cases in which the iris is dragged to one side in consequence of some accidental wound of the cornea, or the central portion of the cornea has become permanently leucomatous, but also to cases of conical cornea. Our English readers, we dare say, do not require to be told that this operation of distension of the pupil was greatly improved by Tyrrell. For the benefit of foreign readers we may mention, that operating in the manner just now described, Tyrrell found that sometimes nothing more than a mere fissure resulted from drawing out the iris. This being too small for good vision, he was led to perform a second operation on a similar plan. He made the second opening in a new position, so as to enable him readily to extend the fissure resulting from his first proceeding; thus, if he had made his first opening at the outer and lower part of the cornea, and got only a fissure instead of a fair-sized pupil, as soon as the eye had recovered from the effects of the first operation, he made a second opening through the cornea, a little above its centre; and, seizing the upper margin of the fissure with his blunt hook, he drew it out through the puncture of the cornea, thus forming a full-sized triangular enlargement or extension of the pupil, two of the angles corresponding to the punctures in the cornea, and the third to the position of the wound or ulcer which had produced the original alteration, and rendered an operation necessary.

When we reflect on the simplicity and satisfactory results of such an operation as this, which Tyrrell frequently performed without losing more than two or three drops of the aqueous humour, the patients, as it were instantaneously, recovering vision, so as to be able to read easily, without the aid of a glass, within a minute or two of the operation; we must confess that we turn with a thrill of horror to view the apparatus, and hear the description, of Dr. Desmarres' operation by "*enclavement*." He tells us,

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ponction dans la sclérotique est toujours préferalle à celle qu'on fait dans la cornée." (p. 463.) "On a essayé de pratiquer iridectomic par la sclérotique. Riccke est l'inventeur de cette méthode qui ne présente aucun avantage." (p. 466.)

indeed, that it is possible to perform the operation with a common lancet, and a pair of fine forceps; but, in imitation of M. Guépin, of Nantes, he uses a machine, which he calls a "*couteau lancéolaire emporte-pièce.*" We think we have seen something like this hideous thing in a shoemaker's shop, where it was used for punching holes in a piece of leather; but surely nothing so clumsy or abominable was ever brought into contact with the human eye, till this nipping-tool struck the brain of M. Guépin, of Nantes.

Dr. Desmarres claims the merit of having combined in his instrument a knife for opening the cornea, and the nipping-tool for cutting out—what? a piece of the cornea. Yes! having got the one blade, namely, that which his ingenuity has converted into a knife, with two shoulders, to prevent it from penetrating too far, on the inside of the cornea, and the other, the blunt blade, on the outside, he brings the blades together, and literally nips out a bit of the margin of the cornea! M. Guépin's tool had no knife, so that he was obliged to make an incision with another instrument, and then seize the edge of the incision with his nippers. Dr. Desmarres is evidently much pleased with the happy idea of prolonging the nib of his instrument into a knife, and also claims (very fairly, if we can judge of the two machines from the figures he gives) the merit of having invented "un emporte-pièce moins lourd que celui de M. Guépin de Nantes."

But for what purpose, exclaims the reader, does he cut out a piece of the cornea? Oh! to permit of a hernia of the iris! Into the hole, cut out by the *emporte pièce*, comes, of course, the iris, enlarging in the same direction the natural pupil. If it does not come immediately and sufficiently, there is a hole through which a hook can be passed, to draw the iris out to a greater extent; or what is better, in Dr. Desmarres' judgment, and sooner done, cauterize the piece which has protruded with the pencil of nitrate of silver; for it is a discovery of the Doctor's, that if a hernia of the iris is touched with the lunar-caustic pencil, it instantly becomes twice or thrice as big as it was before!

No wonder that Dr. Deval, in his quiet way, has remarked—"Les modifications que le docteur Guépin a introduites dans le procédé primitif l'ont peut-être rendu plus défectueux encore, en aggravant la vulnération."* Yes! the *vulneration* is very considerably aggravated, indeed, and very likely to determine the destruction of the eye. We should bet on odds, there has been nothing so absurd proposed in the eye-way since Pellier de Quesnay's never-to-be-forgetten proposal, to cut off a leucomatous cornea, and replace it by a cornea of glass, to be fixed in its place "*par le moyen de deux ou trois points de suture!*"

The fifth and last method of forming an artificial pupil, according to Dr. Desmarres, is that by "déchirement," or laceration:

> "In the *fifth*, which we have invented, we seize the iris by the anomalous adhesions which it has contracted; and after having torn it away by pulling it (*après l'avoir déchiré par arrachement*), we bring it out through the cornea, and excise it; this is the method which we shall call by *déchirement*." (p. 433.)
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> "Separation of the iris, applicable only to cases of complete anterier or posterior synechia, being frequently followed by accidents, I have thought that there might, perhaps, be less inconvenience in breaking through the adhesions established between

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* Chirurgie Oculaire, p, 246. Paris, 1844.

the iris and cornea, or between the iris and the capsule, than in tearing away the ciliary attachments of the iris." (p. 474.)

We differ from our author as to the applicability of separation. There is no case, in the long list of cases requiring the formation of an artificial pupil, in which separation may not be practised. It is, however, the most severe of all the methods of operating, and therefore never to be preferred to incision or excision, except when some serious objection exists, in the cases before us, to these operations. That separation is applicable only when the whole margin of the pupil is adherent either to the capsule or to the cornea, is entirely erroneous. The narrowness of the lucid segment of cornea, behind which the artificial pupil is to be placed, is usually the determiningcircumstance which leads the oculist to choose separation. If the segment is small, he is unwilling to cut into it, for excision, lest he should render it thereby opaque; while it would be impossible to form a sufficiently large pupil, under such circumstances, by incision. He is therefore limited to separation, which he practises whether the pupillary margin of the iris be adherent or free, but more easily and satisfactorily if it be free, than if it were involved in a synechia.

Say, there is a central leucoma, to which the whole edge of the pupil is adherent; or the cornea is entirely clear, but the pupil is obliterated, and adherent to the capsule. The operation chosen is excision. The edge of the cornea is opened with the knife, but no spontaneous hernia of the iris follows; a pair of forceps, or a hook, must be introduced, the iris laid hold of and the adhesion torn through, if possible; at any rate, the iris must be drawn out to a sufficient extent, and snipped off. Dr. Desmarres announces himself the inventor of this sort of operation, which differs, however, from the operation of Beer and Gibson, only by a very slight shade.

Wenzel, as every oculist knows, was the inventor of excision; but his operation was a central excision, requiring half the cornea's circumference to be opened with the extraction-knife. In 1805, Beer published his account* of the operation of lateral excision, which he had already practised successfully in thirty-two cases out of thirty-seven. It does not appear that in any of those cases did he require to tear the adherent iris from the capsule or from the cornea, in order to affect the prolapsus of a sufficient portion to be excised. It is not till the publication of the second volume of his 'Lehre von den Augenkrankheiten,' in 1817, that we find him distinguishing three states in which the iris may be, when the operation of excision is contemplated. In the first case, the iris is perfectly free; in the second, it is partially adherent, but the pupil partly open: in the third, the whole pupil is adherent to the cornea or the capsule. His directions for the management of this third case are as follows:

> "Lastly the iris is, even at the place where the artificial pupil must be formed, adherent by its pupillary edge to the cornea; then must we lay firm hold of it, at its great ring, with the hook which we introduce, or if this always tears itself out, with fine-pointed toothed forceps; draw it out between the lips of the wound, and cut off the top of the hernia thereby produced, even somewhat within the lips of the wound, as by strong traction of the iris we should tear it in a way which would injure the result of the operation. In such cases, the normal lens and capsule

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* Ansicht der staphylomatösen Metamorphosen des Auges, und der Künstlichen Pupillenbildung, p. 115. Wien, 1805.

cannot be injured if the patient be at all steady, and the operator has attained a sufficient dexterity in extraction of the cataract. The last-mentioned procedure, with the forceps, must also be at once adopted when we mean to form an artificial pupil by excision after extraction, which indeed is possible, only when the remaining capsule has not suffered severely from traumatic inflammation, and when the coagulated lymph in the posterior chamber exists only in small quantity, and does not extend beyond the little ring of the iris towards the ciliary ligament."*

From this extract the reader will observe that Beer dissuades us from using such force, in drawing out the piece of iris seized with the forceps, as shall endanger its substance being torn, an event fully as likely to happen as the giving way of its adhesions to the cornea or the capsule.

Mr. Guthrie, in quoting the above passage from Beer, has mistranslated it in such a way as might lead the reader to suppose that Beer did not disapprove of the iris being torn. His translation runs thus:

> " In this case it must be laid hold of by the hook near its larger ring, or, if that tears out, a pair of fine-pointed and indented forceps are to be introduced, and the iris thus torn is to be drawn out if possible, and the piece cut off."†

The words " torn out" are an interpolation of the translator, and change the sense.

Mr. Gibson, in all probability without any knowledge of what Beer had published in 1805, gave to the world, in 1811, his excellent work, entitled " Practical Observations on the Formation of an Artificial Pupil," in which he describes exactly the same method of operating, by lateral excision. In those cases in which the adhesions between the iris and cornea are so extensive that the whole circle of the pupil is enveloped by them, he states that " before the hook or iris-scissors can be used with advantage, it becomes necessary to separate the adhesions as extensively as possible." Instead of tearing away the iris, according to Dr. Desmarres' plan, Mr. Gibson directs (p. 66) that " the point of the cornea-knife is to be passed through the cornea in the usual way, and is to be directed to those adhesions, the division of which will most effectually tend to render the iris free for the subsequent part of the operation." When the pupil was adherent to the capsule, he appears to have made no attempt to separate the iris, but proceeded to draw out a small portion of it, and having snipped this off, enlarged the artificial pupil, thus begun, with the iris-scissors, introduced through the wound of the cornea.

With these historical details before him, the reader will easily be able to appreciate the amount of Dr. Desmarres' original invention, as displayed in his operation by " *déchirement.*" The pretence displayed in treating of it separately from excision can only excite ridicule.

One of the general rules commonly laid down relative to the formation of an artificial pupil is, that " when one eye is sound, it is not advisable to operate on the other." " Vision," says Mr. Lawrence, " with an artificial pupil, is imperfect compared to natural sight; hence the patient continues to use his sound eye, so that he is no better off after the operation than he was before, even if it should succeed. The apprehension has been expressed that the imperfect sight on the operated side might confuse that of the good eye."‡ Dr. Desmarres takes the opposite view of this question. He says :—

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* Lehre von den Augenkrankheiten, vol. ii, p. 202. Wien, 1817.

† Lectures on the Operative Surgery of the Eye, p. 447. London, 1830.

‡ Treatise on the Diseases of the Eye, p. 451. London, 1841.

> "There is much exaggeration in these fears. According to my personal experience, on the contrary, we may without danger practise the operation for artificial pupil when one eye is sound, provided the diseased eye presents certain conditions. Far from having a negative result, by want of parallelism, a general indistinctness of vision, or an annoying diplopia, we certainly improve the vision of the patient. I have practised the operation six times in one year, and have not seen a single case in which the patient had cause for regret." (p. 479.)
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> "In all cases where we can establish the artificial pupil on the inner side of the eye, the parallelism of the optic axis will not be destroyed, and vision will be better when the patient keeps both eyes open. The person operated on will be exactly in the same case as those who see a little indistinctly with one eye, and very well with the other, when they try them separately, but who have their sight perfectly good when they look with both eyes at once. Besides, nothing consoles a patient so much who has ceased to see with one eye, than to recover the use of it, did it suffice only to guide him; he ceases from that instant to be afraid of losing the good eye, and recovers his tranquillity," (p. 480.)

The following recommendation to operate, even although a large ulcer exists on the cornea, staggers us a little, and certainly does not harmonize with the dissuasion against the use of paracentesis corneæ, in cases of hypopium. A mere puncture of the cornea, Dr. Desmarres was afraid, might, in a case of hypopium, cause total disorganization of the eye. Let us hear what he advises when a large ulcer exists on the cornea:

> "If the patient has but one eye, and the cornea of it presents near its circumference a large ulcer, threatening the iris with a procidentia, which may compromise the pupil, we should hasten to displace the pupil towards the sound edge of the cornea, before the perforation takes place. It may be objected to this advice, that to attack the cornea while it is diseased would compromise the whole organ; that the wound of the iris, by *excision*, adding still more to the intensity of the inflammation which is present, we should place the patient in almost inevitable peril, &c. To all this I shall reply, that in such circumstances I have oftentimes practised an artificial pupil by excision, and that I have been fortunate enough to cure my patients; that in all these cases where I have foreseen that inflammation was about to destroy one half of the cornea, the other half being sound, I have boldly punctured the latter, excised the iris, and thus saved the pupil, which instillations of belladonna could not have protected." (p. 481.)

Of course we cannot pretend to dispute Dr. Desmarres' facts. We may just hint our belief, that the puncture of the cornea might have been sufficient, in the cases in question, to have saved the eye, by leading, as paracentesis corneæ is well known to do, to the healing of the ulcer, and that it might be as well, under such circumstances, to let the iris alone.

The following remarks on the condition of the iris, in cases where an operation for artificial pupil is contemplated, are sound and well expressed:

> "The iris ought to be the object of deep attention to the practitioner. When it is of a dusky colour, when it has assumed a reddish-green tint; when its fibres have lost their natural appearance, we may expect to see it tear under the action of the instruments, and allow itself to be dragged neither by the hook nor the forceps when we operate by separation or excision. The instrument destroys the texture of the membrane, without accomplishing a removal of its substance sufficiently extensive. In other cases the iris, embossed and discoloured, is pushed against the cornea, while its converging fibres form deep furrows, between which its parenchyma, pressed from behind forwards, projects. In this case we may expect to find the iris lined by thick false membranes, which compromise the success of the

operation, and are very often organized to a great depth within the eyeball." (p. 482.)

On the choice of a place for an artificial pupil, and on the proposal to divide one or other of the recti, in order to bring the artificial pupil into the line of direct vision, Dr. Desmarres remarks:

> "It is difficult to comprehend how one could, after the example of Mr. Rognetta, choose the upper part by preference, for the sole reason that light comes from above, especially when it is proved every day in practice that pupils thus placed are masked in part by the upper eyelid, and that it is necessary, sometimes, with M. Cunier, to divide the rectus superior, that the globe of the eye may be properly uncovered and directed downwards.
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> "When one is obliged, from the state of the parts, to practise an opening in the iris far from its centre, we may observe, if the operation succeeds, that the eye is not slow in directing itself in a regular manner. Oscillations of the whole of the globe in the line of the object, the perception of which is sought for, indicate that the eye will soon assume the proper direction in a fixed and steady manner. We should not be in a hurry then to perform sections of muscles, recommended in many cases of artificial pupil." (p. 484.)

Dieffenbach says, Make the opening in the situation of the old pupil if possible. As this is seldom the case, of course the most transparent part of the cornea must be opposite the new pupil, and if the condition of the cornea admit of choice for the opening in the iris, the order of selection should be as follows: the best, near the inner angle of the eye, next near the outer angle, then near the inferior border, and, lastly, superiorly, because the upper lid covers so much of the cornea, that the eye must be forcibly rolled downwards to admit rays of light to the retina. Dieffenbach objects to the operation when vision with the other eye is good; and, as a general rule, prefers the operation by the cornea, to that by the sclerotica, on account of the less risk of injury to the lens and its capsule. When separation of the iris is to be practised on account of extensive adhesions to the cornea, then he operates by the sclerotica. All the varieties of the operation are carefully and well described, but we find nothing peculiar to the great German surgeon himself. His last section includes the formation of an opening in the sclerotica to admit light to the retina, when no other means of transmission can be formed. He has done it himself, by fixing the eye with the conjunctiva hook, and after determining the situation of the opening either towards the outer or inner angle, raising a semicircular flap of the conjunctiva, by means of a fine scalpel, about three lines in breadth, and turning it backwards. Then a small sharp hook is carried through the exposed sclerotica and drawn outwards, to make a sort of projection of this membrane, which is then pierced with a narrow sharp knife a little distance from the hook, and the knife being carried all round the hook, a circular piece of sclerotica is removed with the attached choroid and retina. The piece removed should be about the size of a pea. The flap of conjunctiva is then replaced and fixed by fine sutures, the eye cleansed, and the eyelids closed by strips of plaster. At first the result excites hope, large objects may be distinguished, but after a time the opening closes by cicatrization and contraction. Dieffenbach thinks, however, that in cases otherwise hopeless, further trials should be made, as a mere perception of light is a great thing for a person totally blind.

Cataract. The first remarks of Desmarres we find worthy of extract are the following on the season for operation

> "Many surgeons attach a great importance to the selection of the season in which the operation ought to be performed; others see no inconvenience in operating at any period of the year, and, if we only except the time of excessive heat, I think the latter are completely in the right. Moisture and cold have appeared to me in general to be little objects of dread; I have not seen these conditions of the weather have any serious influence on the result of the operation. The only rule which I deem it necessary to follow is, to operate at the moment when the general health is in the best possible state." (p. 554.)

Dieffenbach advises the surgeon to choose a fine clear day for the operation, and if any catarrhal or rheumatic disease be prevalent, to defer it altogether.

Desmarres' reclination. After a full and precise description of the ordinary operation of reclination through the sclerotica, with Dupuytren's needle, we are somewhat surprised to find the Indian operation, with a knife and a small spoon, introduced with the title of "*Procédé de l'auteur.*" The native Indian operators use a lancet for puncturing the sclerotica, and then introduce a blunt, pyramidal, brass needle: Dr. Desmarres' instruments, and his manner of operating, are similar to theirs, and equally rude; only that he does not leave the spoon hanging from the wound of the sclerotica, to give the cataract a poke down again, should it venture to reascend, as they do. When the knife which he figures is not at hand, nor the little spatula or spoon, he recommends a lancet to be used, and a common probe. The *advantages* of this very rude operation he thus enumerates:

> "1. Easy manipulation. 2. Impossibility of wounding the iris. 3. Less dangerous swelling of the crystalline, and, proportionably, less frequent inflammation of the internal membranes. 4. Extreme facility for the performance of paracentesis through the wound made in the sclerotica, should iritis supervene. 5. No vomiting. 6. No special instruments.
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> "The *inconveniences* which I have remarked are: 1. Internal hemorrhage from wounding the ciliary vessels. 2. Escape of part of the vitreous body when it is dissolved. 3. After recovery, tremulousness of the iris, perhaps more extensive and more frequent than after operations with the needle." (p. 580.)

Dr. Desmarres states that this operation is especially suitable for semi-soft lenticular cataracts. He says:

> "These cataracts, from the swelling which they undergo in the aqueous humour after depression, occasion iritis and internal inflammations, which often compromise the result of the operation. In practising depression in the way I now indicate, we first of all give exit to the aqueous humour; if any inflammation succeeds, we anew give issue to this fluid without difficulty, and thus we have always easy means of combating swelling and internal inflammation of the eye. Besides, the manipulation is very simple, and if we use a common lancet and probe, it is unnecessary to provide any particular instruments for this operation for cataract. I have often substituted the procedure for the ordinary depression in cases of hard cataract: and have equally had recourse to it when I wished to divide the cataract, and, above all, lacerate the capsule." (p. 578.)

The advantages enumerated by Dr. Desmarres are, on the whole, very problematical; the inconveniences are but too certain.

Dr. Desmarres forgets to tell us in what period of the operation he gives issue to the aqueous humour. If it is in the first, or puncturation with the knife, most assuredly the iris will stand a great chance of being cut; if in the second, when the spatula is applied to the anterior surface of lens, or in the third, when the lens is pressed backwards and downwards into the vitreous humour, the iris can scarcely escape being bruised by the clumsy instrument which is thrust between it and the lens.

The reckoning it an advantage, that a large wound has been left in the sclerotica, through which the aqueous humour can at any time be let off, appears to us extremely opposed to the spirit of ophthalmic surgery, which is to do as little injury as possible to parts so susceptible of reaction and consequent disorganization as the several textures of the eye. We see no cause why no vomiting should follow this mode of reclination. The loss of vitreous humour, and, what is more serious, the amaurosis, which so large a wound of the sclerotica and choroid is likely to cause, should certainly forbid this operation from being brought into competition with the method of reclination, practised by the scientific oculists of the present day.

Division of opaque lens. Laceration of capsule. Dr. Desmarres describes as separate operations, *broiement*, in which the lens, as well as the capsule, is cut up with the needle, and *dilaceration*, in which the capsule only is divided. Either of these operations may be performed through the sclerotica or through the cornea. The laceration of the capsule he performs with a small hook, to admit which through either membrane, he makes an incision with a knife. He reserves laceration of the capsule through the sclerotica for those cases in which inflammation has at some previous period produced numerous adhesions between the capsule and the iris, so that extraction cannot be performed, except by dividing the iris to a large extent, a manipulation both difficult and dangerous; while depression, supposing that the adhesions could be broken, would infallibly arouse anew the old internal inflammation. The incision, in laceration of the capsule through the sclerotica, being pretty considerable, the aqueous humour escapes, and the eye becomes somewhat flaccid. This renders the laceration of the capsule with the hook rather difficult. This and other disadvantages, however, are counterbalanced, in Dr. Desmarres' judgment, by the ease with which, should any inflammation follow the operation, he can reopen the wound of the sclerotica, and evacuate the aqueous humour. We have already stated our objection to this kind of paracentesis; we should dread the effects of so large a wound in the sclerotica and choroid from the first, much more the opening of it up, not merely once, but a second, third, or fourth time, or as often, in fact, as the signs of inflammation returned (p. 597). Paracentesis corneæ we should regard as a much less dangerous means of combating inflammation of the internal structures of the eye, after operations with the needle.

Extraction. Preliminary considerations.—Besides the common apparatus for extraction, including Beer's or Richter's knife, Dr. Desmarres provides himself with a ring, which he puts on his middle finger, and from which rises a double-pointed spike, to fix into the eyeball; also Pamard's *pique*, for the same purpose; and a pair of spring forceps, with which to lay hold of the conjunctiva bulbi. All these are for steadying the eyeball, when it is very restless, or the patient very timid.

To ascertain that there are no adhesions between the iris and the capsule, such as might render extraction difficult, he dilates the pupil with belladonna a week or two before the operation; and then allows it to return to its usual diameter.

Some time before the operation, he advises the surgeon to rehearse it, as it were, on the patient:

> "If we perform extraction on timid persons, the eyeball, turning with rapidity into the inner angle, or behind the upper eyelid, as soon as it feels itself touched, no longer allows the surgeon to perform properly the section of the cornea, and hence very serious accidents result. On the contrary, if for some time we habituate the patient to bear tranquilly the contact of a common probe, which, while the eyelids are held separate, is made to touch alternately the conjunctiva bulbi and the cornea, the eye, in some sort tamed, will remain so perfectly still during the operation, that the instruments invented to fix it will be useless. This sort of rehearsal of the operation has also this advantage, that it sets aside the danger in nervous subjects, of syncope, vomiting, cramp, sudden movements of the head, or of the whole body, accidents which often require the surgeon to recommence the operation several times before it is accomplished." (p. 601.)

Place of section of cornea. The operation of extraction Dr. Desmarres divides, as is usual, into three periods; namely, the section of the cornea, the opening of the capsule, and the exit of the lens. These are carefully described, and illustrated by excellent woodcuts. Indeed, we think he amplifies rather too much the descriptions of his predecessors; but to beginners both the figures and the text will be of great use.

Having described the mode of performing the inferior, the oblique or semi-lateral, and the superior sections of the cornea, Dr. Desmarres draws the following parallel of the advantages and inconveniences of the three procedures.

> "*Inferior keratotomy.* This procedure presents a great facility in the exceution, counterbalanced by serious inconveniences in the result. Thus, the lower half of the cornea is easily exposed, by depressing the lower eyelid; but the escape of the vitreous humour is more liable to happen, as well as procidentia iridis; and if we do not guard against it, the lower eyelid, in consequence of some contractions of the orbicularis, is apt to slip between the lips of the wound, even when the dressings have been carefully applied. The flap is always placed in unfavorable circumstances for reunion, being bathed in the tears of the lower *cul-de-sac* of the conjunctiva, an inconvenience which may cause the suppuration of the whole globe.
>
> "*Oblique keratotomy.* The operation is perhaps a little more difficult, at least it requires more experience on the part of the surgeon. The direction of the knife requires more steadiness of hand; the projection of the orbit, if we puncturate too high, prevents the direction from being easily preserved; and should the operator hesitate in the least after having made the puncturation, and the patient turn his eye upwards, the aqueous humour escapes along the knife, and the iris is wounded. These accidents, however, become very rare after a little practice. Oblique keratotomy, on the other hand, presents some advantages not possessed by the inferior section; thus, the middle of the flap, turned towards the external side, is not rumpled by the lower eyelid, and is not bathed in the tears, and the wound of the cornea, completely covered by the upper eyelid, heals with promptitude. Besides, the knife, directed obliquely from above downwards, and from without inwards, wounds neither the nose nor the lacrymal caruncle, an accident which may happen in inferior keratotomy; and if the globe turns into the inner angle, counter-puncturation is less difficult that if the flap were made below. If the three procedures of extraction by the cornea, oblique keratotomy, in spite of the inconveniences we have enumerated, is, without good reason, preferred by many practitioners; they have recourse to the inferior incision only in particular cases, where the projection of the orbit is too great, the palpebral opening narrow, and the globe deep set.

"*Superior keratotomy.* This procedure, in opposition to inferior keratotomy, undoubtedly presents great inconveniences in the execution, counterbalanced by great advantages in the result. The section of the flap offers real difficulties: as the eye turns naturally upwards and inwards, the operator, after he has made the puncturation, is obliged to keep it in a proper position, by pressing it gently from above downwards; there is some danger of wounding the upper eyelid; when the eye is too moveable, it may happen that we are obliged to withdraw the knife, and to finish the section with other instruments. But the advantages of this method are numerous; the opening of the cornea being above, the aqueous humour does not escape so easily, at least not the whole of it; the flap, supported by the upper eyelid, is in the best position for uniting; it is not bathed in mucus and tears, and cannot be pushed away by the eyelid, as may happen in inferior keratotomy. Procidentia iridis is also less to be feared, should the patient be attacked by cough or vomiting.

"Of these three procedures, then, the last offers the greatest advantages, and is consequently that which the surgeon should chiefly practise." (p. 610.)

The comparison thus made of the three sections is, on the whole, candid and just; only, we are not quite so sure about the upper section being the least exposed to the irritating effects of the tears. If it gapes in the slightest, it is plain, it will catch the tears as they flow from the lacrymal ducts, whereas this secretion will slide over the oblique and the inferior sections, without intruding into them in any considerable degree.

Division of the capsule. We are commonly directed, in the second period of extraction, to make three or four oblique incisions in the anterior capsule, and cross them by as many in the opposite direction. On this part of the operation, Dr. Desmarres remarks, that—

"It is impossible to divide the capsule into squares or lozenges, even with the very sharpest instrument. When an opening is made in this membrane, the needle draws with it, under the pression which it exercises, the corresponding lip of the solution of continuity, but makes no new incision. I have assured myself of this fact in rabbits, by introducing a needle through the cornea, and dissecting the eye after killing the animal." (p. 607.)

Premature loss of the aqueous humour. It is a common direction, that in those cases in which the aqueous humour has spirted out on making the puncturation of the cornea, we should withdraw the knife, and defer the operation till a future day. Dr. Desmarres is of opinion that by waiting only for a few minutes, while the patient keeps his eyes closed, the aqueous humour may be sufficiently regenerated, to replace the iris in its natural situation, and to allow the operator to resume the section of the cornea. (p. 617.)

Size of section of cornea. Dr. Desmarres recommends the section to be about one half of the circumference of the cornea, or at least not much under this size. He then says: "Maunoir recommends the section to extend to only five twelfths of the cornea; we may go to seven sixteenths, but it is hurtful to go beyond that, as Ware does, who directs the flap to occupy two thirds." (p. 621.)

So far as Ware is concerned, this is a gross mistatement. Ware recommended the incision to comprise nine sixteenths of the circumference, observing that this "extent the incision ought always to occupy, in order to give the cataract good room to come through it."* Neither is the reference to Maunoir correct, whose remark on the subject is as follows:

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* Enquiry into the Causes of Failure in Extracting the Cataract, p. 267 .London, 1812.

"Dire que ce soient les sept douzièmes plutôt que les neuf seizièmes, je ne le puis et comme la différence entre ces deux fractions n'est que d'un quarante huitième, il y a, je crois, grande chance pour que les préceptes donnés à ce sujet par les différens auteurs ne soient jamais exactment suivis."*

Dr. Desmarres' statement makes Maunoir recommend a smaller section than he actually does, and Ware a much larger.

Prolapsus of the vitreous body. We cannot say that we admire our author's mode of treating this accident. He says :

"When the vitreous body escapes, the assistant immediately lets go the upper eyelid, and the patient, with his head bent back, is led, his eyes being closed, to bed, whereon he is to be laid, with his eyelids moderately shut, as during sleep. I do not think, with Chelius, that the resection of the prolapsed part ought necessarily to augment the size of the hernia, and that the chief care ought to be to keep the eye closed with adhesive plasters. The patient being supine, we raise then the upper eyelid with caution, while the other eye is open, and we try, with curved scissors, to divide the vitreous body quite close to the wound of the cornea ; then, having desired the patient to keep his eyes shut, we give his head one or two good jogs (*une ou deux secousses assez brusques*), which will reduce the hernia better than Daviel's curette or a probe. Unfortunately it happens very often that the vitreous body does not resume its place in the bottom of the eye, the hyaloid and the iris contract adhesions to the cornea, and consequently the pupil is deformed and partly covered by a leucoma." (p. 623)

It appears to us that Dr. Desmarres omits to notice the chief means for reducing the size of the prolapsus, and bringing close the edges of the wound ; namely, friction of the eye through the medium of the upper eyelid. As for cutting off the portion of vitreous humour, we should deem it useless, even could it be effected ; and as for jogging the head of the patient, the advice is ludicrously absurd.

The accidents which attend or follow the operation of extraction are pretty fully considered. Eversion of the flap, however, appears to be almost forgotten ; and hemorrhage into the vitreous cells altogether omitted. Our author, indeed, amplifies perhaps too much what is commonly said on the effects of extraction ; but where his predecessors are silent, he rarely attempts to supply their deficiencies.

Dressing. It seems pretty evident that the dressing of the eye after extraction, while it should keep the eyelids of both eyes perfectly still, should allow the escape of the aqueous humour from between the eyelids, if it is discharged from the eye, which is generally the case for twenty-four hours or longer ; and yet be of such a kind as to cause no detrimental pressure on the eye. A strip of court-plaster passing from the upper eyelid to the lower, or at most two strips crossing each other over the middle of the fissura palpebrarum, is generally thought sufficient for this purpose. Dr. Desmarres applies one strip vertically near the nasal extremity of the eyelids, another near their temporal extremity ; then two crossing each other over the centre of the eye ; then a fifth over the cilia, and along the whole length of the fissura palpebrarum, except at the inner angle, where a space should be left free for the escape of the tears. To support the vertical strips, he says that two others may be applied transversely over their extremities, which will make seven strips altogether. This we consider too much. The strip over the fissura palpebrarum and cilia seems particularly objectionable, in so far as it will both overheat the eye, and cause a stagnation of the mucus and tears between the eyelids and the eyeball.

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* Essai sur quelques points de l'Histoire de la Cataracte, p. 59. Paris, 1833.

Dr. Desmarres observes that the compresses wrung out of iced water, which some use after extraction, will not displace the strips of plaster applied in the way he describes. At the same time, he mentions that this is a practice which he has abandoned, both as it prevents the patient from going to sleep, and as it is apt to bring on rheumatic pains and cough.

After-treatment. Iritis and hernia of the Iris are the two accidents occurring after the operation, to which Dr. Desmarres chiefly directs attention. When either of them is suspected to exist, he urges the propriety of immediately undoing the bandages and examining the eye.

> "If we have reason to think there is iritis, we first of all remove the coverings, in order to examine the eye; then, if the inflammation is present, we combat it by large bleedings, repeated at as short intervals as possible, by opium given internally, and by plentiful friction with extract of belladonna and Rousseau's laudanum round the orbit. If it be procidentia iridis, of which reduction, always difficult, cannot be effected, and this accident produces pain and threatens to become the cause of suppuration, the protruding part ought to be laid hold of with forceps or a small hook, and excised as close as possible to the flap of the cornea; the edges of the wound of the cornea are then to be brought together with the greatest care, the eye covered with strips of plaster, and an energetic antiphlogistic treatment pursued.
>
> "We should deceive ourselves greatly if we believed that the precaution of removing the bandages must necessarily hinder the reunion of the wound, and thus predispose to suppuration of the flap. Very lately, a lady whom I operated on at Versailles, furnished me the opportunity of recognising the innocuousness of this practice; twelve hours after the operation she was suddenly seized with acute pain in the eye and eyebrow; the eyelids were swollen; there was much restlessness and a little fever; the patient had not slept the whole night. The sudden occurrence of the pain, which had been preceded by no feeling of discomfort in the eye, made me suspect a procidentia iridis had been produced, which the examination of the eye proved to be the case; the flap was separated by a small hernia, which I managed to reduce by friction with the eyelid. The eye was immediately closed, and the patient bled repeatedly. Next day, I again removed the bandages, and I saw, by a sort of black filament between the lips of the wound and by a slight deformity of the pupil, that the hernia had in part returned; I excised it, the bandages were replaced, and were not again removed till the seventh day, the pain having completely subsided. By this time, the union of the wound was almost complete; the removal of the bandages, then, had occasioned no bad effect. This and other facts have led me to examine every day eyes operated on by extraction, and I am now convinced that there is no danger in opening them as often as we may judge necessary, provided one takes the proper care in taking off the bandages." (p. 632.)

Against the practice of cautiously examining the eye, here recommended, we shall not contend; but we have a strong suspicion that it would be both difficult, and likely to do more harm than good, to try to excise a hernia of the iris, so small that it presented no more than the appearance of a black filament between the lips of the wound. We should think the attempt to catch hold of it very likely to make it larger; and that it would be better to let so minute a hernia alone.

Extraction of secondary capsular cataracts. After describing the mode of extracting secondary capsular cataracts through a small incision of the cornea, as was practised by Gibson, to whom, however, he makes no allusion, Dr. Desmarres proceeds to consider extraction of such cataracts through the sclerotica. He attributes the invention of this operation to Dr. Sichel, and refers to a paper by this gentleman, in the 'Gazette des Hôpitaux' for 1840, on the subject:

> "This operation has for its object, the removal of capsular cataracts adherent but little to the iris. We may, most frequently, substitute for it depression by the needle; but when depression has not succeeded, sclerotic extraction of the opaque capsule is indicated, unless we prefer corneal extraction. We owe the invention of this procedure to M. Sichel, who has added to that of Quadri, for sclerotomy, the important modification of opening the sclerotica in the antero-posterior direction, instead of making the wound parallel to the circumference of the cornea. The inventor, after having punctured the sclerotica, first of all introduces by the wound a common cataract-needle, with which he breaks down the adhesions between the capsule and the iris; then he lays hold of the opacity with a pair of small-toothed forceps, and draws it out. He thinks, with reason, that the incision made in the direction which he points out, is very advantageous, in so far as it avoids the inconvenience necessarily attendant on the puncture parallel to the circumference of the cornea, advised by M. Quadri for the extraction of common lenticular cataracts; an inconvenience consisting chiefly in this, that the external lip of the wound, drawn outwards by the fibres of the muscle, which occasions a constant evacuation of the humours through the opening, is in the very worst condition for reunion. M. Sichel performs the operation in four principal periods: in the first, he punctures the sclerotica; in the second, he introduces by the wound a cataract-needle, if he thinks any rather strong adhesions connect the capsule to the iris, and he divides them or breaks them by a simple pressure from before backwards; in the third, he substitutes for the needle a pair of find forceps, and seizes the cataract; in the fourth and last, he withdraws the instrument closed, and at the same time brings away the opacity. If the cataract is free from adhesions, which is rare, the second period is omitted." (p. 632.)

Not merely is a *quantum sufficit* of impudence necessary, for those who appropriate to themselves the discoveries and inventions of others, but they would require also to look about with caution, and assure themselves that there is no one likely to detect and expose their practices.

We believe there are few better acquainted with the history of eye-surgery than M. Sichel. We doubt not that he is well acquainted with the thesis of Albinus, 'De Catarrhacta'* (1695), in which that illustrious author describes and figures a minute pair of needle-forceps, for extracting membranous cataracts through the sclerotica. "Hoc modo præparata acu perforari oculum, cumque ad catarrhactam pervenerit presso digito è latere forcipe prehendi pelliculam, simulque extrahi debere volunt." We doubt not that M. Sichel has perused the well-known thesis of J. H. Freytag, 'De Cataracta'† (1721), and that he remembers the account therein contained of the extraction of capsular cataracts, by the author's father, through the sclerotica, with a hooked needle. One of the cases related, is that of the son of Mr. Reinacher, whom Freytag, the father, had couched for cataract in each eye. In the right eye the cataract reascended, or was supposed to have reascended, on which Freytag operated a second time. "Operationem de novo, eaque mediante acu hamata tentavit, felicissimoque cum susccessu cataractam ex oculo extraxit." It scarcely admits of doubt, that what was extracted in this case, was a secondary capsular cataract, and not a reascended lens. The son of the operator adds,—Ipse quoque testari possum, me ejusmodi pelliculeram extractionem a parente meo factam sæpius oculis meis vidisse;" which is sufficient to show, that the father extracted pellicles, or capsular cataracts, with his hooked needle.

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* Haller's Disputationes Chirurgicæ, tom. ii, p. 61. Lausannæ, 1755. † Ib., p. 65.

As is well known to every ophthalmologist, and very well known, we doubt not, to the erudite M. Sichel, Sir James Earle, in 1801, published an account of his instrument and operation for extracting cataracts, through the sclerotica.* His instrument consisted in a small knife, moving backwards and forwards by means of a spiral spring between the blades of a pair of forceps. This instrument was adapted for the extraction both of lenticular and capsular cataracts; and one of the cases related by Earle, is that of a capsule left opaque, after absorption of the lens, the capsule having probably been lacerated accidentally at some previous time.† In his account of his instrument, he refers to Heister's needle-forceps, the instrument described by Albinus, as one intended for the extraction of any portion of the capsule which might be left after couching, and to a somewhat similar instrument proposed by Mr. Hodson, of Lewes, for the same purpose. In the first operations which he performed, Earle punctured the sclerotica parallel to the edge of the cornea; but he afterwards changed the direction into that which Desmarres ascribes to the *inventive* powers of M. Sichel, namely, perpendicular to the edge of the cornea.

If not the inventor of the perpendicular section, perhaps M. Sichel may have been the first to assign as a reason for preferring this section over the one which is parallel to the edge of the cornea, that the inconvenience of the wound being left patent, is thereby avoided. But even here the unfortunate *inventor* has been anticipated. Dr. Mackenzie, in the first edition of his 'Practical Treatise on the Diseases of the Eye' (1830), says: "From some experiments which I have made on the lower animals, I am convinced that an incision through the sclerotica perpendicular to the edge of the cornea, gapes less, and therefore heals sooner, than one parallel to the edge of the cornea."‡

Still the merit of having modelled the operation of extracting secondary capsular cataracts through the sclerotica into four periods, and of really having performed it on the living subject, may perhaps be claimed by M. Sichel; for it is one thing to get the cutler to fashion an instrument, and it is another to show with exactness how the same instrument is to be used, and actually to employ it successfully. Now, on turning to the reports of the Glasgow Eye Infirmary, in the twenty-second volume of the 'London Medical Gazette,' p. 255, being the number of that periodical for May 5, 1838, we find related the case of a girl, of 17 years of age, who, ten years before, had received a cut through the left eyebrow, which was followed by cataract in that eye. The capsule was opaque, and much thickened. There was a minute chink towards the lower edge of the pupil, which was clear, and through which the patient discerned a pen and other objects, when held somewhat to her left side, and her back was turned to the light. On the 15th January, 1834, the following operation was performed by Dr. Rainy: "A curved needle was introduced through the sclerotica about one line behind the margin of the iris, and the opaque capsule detached. An incision was then made with the extraction-knife backwards from the puncture, in length about two lines and a half. The capsule was then removed by a pair of forceps."* On the 22d the wound in the sclerotica was found to be healed. This, then, is identically the operation claimed by M. Sichel, with the exception that here the second period of M. Sichel precedes his first period.†

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* An Account of a New Mode of Operation for the Removal of the Opacity in the Eye, called Cataract. London, 1801.

† Ib., p. 49.

‡ Op. cit., p. 635. London, 1830.

Any claim, then, of priority with respect to the operation of extracting capsular cataracts through the sclerotica, or any claim of having improved that operation, raised in favour of M. Sichel, we are bound by the above historical evidence, to reject; and we do so the more peremptorily, because we consider it the duty of a reviewer to put those down who make it a custom "*metere ubi non seminaverunt.*"

Dr. Desmarres has modified the operation for the extraction of membranous cataracts through the sclerotica. He punctures the sclerotica with a lance-shaped knife, and immediately introduces a pair of forceps, one of the blades of which is prolonged beyond the other, for the purpose of being used in place of a cataract-needle in separating any adhesions which may exist between the capsule and the iris. The short blade is furnished with a tooth, which is received into a hole in the long blade; the capsule is to be seized and kept immovably fixed by this portion of the forceps till it be extracted.

The employment of forceps in this operation necessarily requires a considerable opening to be made in the sclerotica. Such an opening favours the escape of the vitreous humour; and is apt to implicate the annulus albidus anteriorly, or the retina posteriorly.

> "Besides, it happens pretty frequently, in spite of the precaution taken to puncture above or below the transverse diameter of the eye, that the ciliary vessels are wounded, and the chambers filled with blood." (p. 654.)

As to the accident here mentioned by Dr. Desmarres, it is surprising that he should be ignorant of the fact that the long ciliary artery divides at about the distance of a quarter of an inch from the cornea into two branches, an upper and a lower, one or other of which must be exposed to injury by puncturing above or below the transverse diameter of the eye, as he directs. The surest way to avoid these branches, is to puncture in the equator.

By laying aside the forceps, and employing Schlagintweit's hook, we get quit of the extensive incision through the sclerotica. Having dilated the pupil as much as possible by belladonna, we discern whether there be any adhesions between the capsule and the iris. If there be, the operation is commenced by passing a small curved needle through the sclerotica as in reclination, and with this instrument separating, if possible, the adhesions. The needle is now withdrawn, and a puncture made by introducing an iris-knife, $\frac{1}{30}$ inch broad, into the orifice left by the needle. This produces an incision sufficient for the passage of the hook, by which the capsule is seized, and withdrawn. If there be no adhesions, the curved needle is not used, the operation commencing with the puncture made by the iris-knife. In this way we have extracted secondary capsular cataracts with great ease to ourselves, and much benefit to the patient.

Choice of an operation. Dr. Desmarres brings the subject of cataract to a conclusion by a full and judicious consideration of the question, Which operation is to be preferred for the cure of this disease? We may, with confidence, refer our readers to this part of Dr. Desmarres' work as being worthy of their careful perusal. We can afford room for only a few short extracts:

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* Op. cit., p. 255.

† See further, on the Extraction of Capsular Cataracts through the Sclerotica, Brett, in Medical Gazette, vol. xx. p. 415, London, 1837: Middlemore, ib., vol. xxii, pp. 56, 153, London, 1838.

> "If I am asked which operation for cataract I prefer, I answer without hesitation, that extraction, in my opinion, should hold the first place, and ought to be employed as the general method; but I must add that it is not to be used indiscriminately in every case, and that there are cases where it is proper to have recourse to depression, or to one of the other processes which I have already described. It is indispensable, in fact, to ascertain above all the nature of the cataract." (p. 655.)

With respect to *hard lenticular cataract,* our author observes:

> "The *depression* and the *extraction* of this cataract are equally possible, provided there be no local or general complication. Almost every surgeon, however, prefers extraction, especially in old subjects; and they ground their judgment on this, that the crystalline, not being absorbed, is likely to cause, by its presence in the vitreous chamber, such inflammation as very often compromises the result of the operation. The crystalline, it is true, does not disappear by absorption when the depressed cataract is hard; but that is no inconvenience, as is proved by the cases in which the crystalline has been found in the vitreous chamber, more than twenty years after a successful depression. As for the inflammation it may occasion, I am convinced that this occurs only when the operation of depression has been ill performed, or when it has been had recourse to in subjects long affected with cerebro-ocular congestion, and therefore under the influence of unfavourable conditions both general and local. I have operated by depression on a great number of old people affected with hard lenticular cataract, and I have always found the operation succeed better than if I had preferred extraction. When we choose the latter operation, it is true that the cataract is removed entire and with facility; but in some old people the wound of the cornea heals with difficulty, and the eye is thus very often lost." (p. 656.)

In *soft lenticular cataract,* Dr. Desmarres, of course, recommends *division.* With regard to those which he calls *semi-soft,* in which the kernel of the lens is firm, while the cortex is friable, he remarks:

> "When we plunge these cataracts into distilled water, after having extracted them, they swell rapidly, and acquire in a few days a large size. If we depress them, they soon assume this swollen state in the vitreous chamber, where they are exposed to the action of the aqueous humour, and they often cause dangerous inflammation. In most cases these are the cataracts which reascend into the pupil, and constitute lenticular secondary cataract. To them therefore the operation of *extraction* is especially applicable, and we can understand why cases of keratotomy ought to be very numerous in a well-established practice, if we consider that the cataracts we now speak of are incontestably much more frequent than the others." (p 658.)

Before cataract operations, Dieffenbach prefers the use of henbane to belladonna. He uses an infusion of the herb, a drachm to an ounce of water; or a solution of the extract, a scruple to two drachms of water. He thinks belladonna too violent, and that its effects continue too long, and are apt to paralyse the iris durably. We have never seen ill effects from belladonna, or the solution of the sulphate of atropine, as used in this country.

In speaking of the operation by depression, he adverts to the serious effects of depressing the lens too much, and injuring the retina with the instrument. He says the patient feels acute pain, and sees sparks and coloured luminous rays. If the injury is very extensive, amaurosis and some general nervous affections, cramps or convulsions, appear. We have never seen these immediate effects of too great depression; but the secondary are not unfrequent, iritis and general ophthalmia coming on one or two days after the operation. This sometimes arises from too great anxiety to prevent the lens from rising again; at others, from alteration in the position of the lens some hours after operation. Occasionally, the iritis ceases after spontaneous rising of the lens, and we are persuaded that the best practice in such cases is to imitate the process of nature, reintroduce the needle, and elevate the lens. Not very long since, we had occasion to do this in a case of very acute iritis twenty-four hours after operation; the lens had come forward, and pressed against the posterior surface of the iris, and lower edge of the pupil. The bad symptoms almost immediately disappeared after the replacement of the lens, and a few weeks afterwards we again depressed it with success.

Dieffenbach's observations upon the cases in which extraction should and should not be performed, are most judicious; but they agree so closely with those of Mackenzie, that it is unnecessary to translate them. With regard to Beer's knife, to which Dieffenbach gives the preference over others, he says:

> "With such an instrument, the whole segment of the cornea to be divided can be cut through by one stroke of the knife from side to side. Its broadest part must, accordingly, equal half the diameter of the cornea, at least three lines, and not be too far from the point, so that the inner angle of the eye be not wounded before the flap of the cornea is cut through. The increase in breadth should be perfectly equable, so that the knife penetrate easily; and the point should be fine, but not too thin, as it might bend or break. The back is straight and blunt, so that injury of the iris, and extension of the wound of the cornea upwards, are avoided. In order that the wound of the cornea may remain closed until the section be completed, and the escape of aqueous humour as much as possible impeded, the thickness of the blade increases from point to heel, and the surfaces are convex. Lastly, the handle must be sufficiently long, not too thick, and have strong attachments to the blade protected by blunted angles." (p. 283.)

He makes his incision include rather more than half the circumference of the cornea. Maunoir's, $\frac{5}{12}$, is too small to allow escape of the lens; Daviel's, $\frac{2}{3}$, or Rosas' $\frac{9}{16}$, too large, leading to prolapsus of the iris, escape of vitreous humour, and injurious entrance of air.

The remarks upon the accidents which may arise during and after the operation are most valuable, but are too long for insertion here.

In speaking of extraction by the sclerotica, Dieffenbach alludes to Mr. Middlemore's needle-forceps, as if they were fashioned for the removal of the lens; whereas Mr. Middlemore only intended them for opaque capsule, not for the lens itself.

After extraction by the lower section, Dieffenbach fixes the lower eyelid by a strip of plaster passing from the edge of the lid downwards beneath the chin, so as to draw the lid downwards, and prevent it from interfering with the flap of the cornea. He keeps it so fixed until the cicatrix is complete, say from three to five days. After the other sections, the eye is simply covered with wet cloths. The patient is kept in bed, and lying on his back in a dark room. Leeches are applied if pain or heat arise. In rheumatic or gouty cases, warm applications are used instead of cold. On the third day, the mucous around the lids is cleared away with warm water; and this is repeated daily, that the tears and secretions may not collect within the lids. About the eighth day, the patient is allowed to observe the effect of the operation, in order to inspire hope and confidence, but very little light is admitted. It is better that the bowels should not be open during the first two days; after this, a mild laxative may be given, if necessaay. Mercury should be given, when required, with great caution, as it interferes with the plastic process, and prevents union of the corneal flap. The diet must be simple, and no food taken that requires much mastication. About the fifth day the room is made lighter; and on the eighth the patient is allowed to walk about the room. In the fourth week he goes out, and at first only looks at green fields and trees, with the eye well shaded, and when the sun is not brilliant. Light must be admitted very gradually. Persons accustomed to take snuff should not leave off doing so, because the conjunctiva is apt to compensate for the deficient secretion of nasal mucus, and a troublesome blenorrhœa is set up.

Amaurosis. Desmarres leaves this subject much in the same unsatisfactory state as his predecessors have done. Those who would make any progress in the pathology of this disease, would require to know something more about the normal anatomy of the eye, than either Mr. Middlemore, who tells us that Dr. Jacob has *fancied* he has discovered a third layer or membrane [of the retina], situated between the medullary layer and the choroid;" or than Dr. Desmarres, who speaks of the layer of staff-shaped bodies, or Jacob's membrane, as a *serous* membrane (p. 750.) They would require to study the microscopical anatomy of the retina; and, what is very difficult to be obtained, they would require opportunities of examining, with leisure, the optic apparatus of those who die amaurotic, so that they might compare, not merely in one or two cases, but in many cases, the symptoms which existed during life with the appearances exhibited after death.

Dr. Desmarres' twelfth chapter treats of *general diseases* of the globe. In the second section of this chapter, he describes cancer of the eye, and very shortly melanosis; following these subjects up with an account of the different modes of extirpating the eye, both when it is free in the orbit and when the diseased parts are adherent to that cavity.

Bonnet's method may be new to some of our readers. It is applicable only to cases where the disease is confined within the globe, as sometimes happens with melanosis. The plan proposed by Bonnet, is to divide the muscles of the eye and the optic nerves at their insertion into the sclerotica, removing the eyeball while the ocular capsule is left untouched.

The eyelids being held apart, Bonnet begins by dividing the rectus internus as in the operation for strabismus; then pushing the scissors through the wound thus made, and making them pass between the sclerotica on the one hand, and the subconjunctival fascia and muscles on the other, he divides circularly the other three straight muscles near their insertion into the eye; there remain to be divided only the two oblique, as near as possible to the eye, then the optic nerve. The eye is thus removed without touching any of the considerable branches of the ophthalmic artery or any nerve, and without penetrating into the fat of the orbit. (p. 758.)

Dieffenbach gives a chapter on extirpation of the eyeball, and another on extirpation of the ball and lids. The only unusual precaution he mentions is, not to injure the levator of the upper lid, because when an artificial eye is worn after extirpation, it would be useless if the upper lid could not be raised.

Strabismus. We find nothing worthy of extract in Desmarres' chapter on strabismus, and its cure by operation. Dieffenbach devotes thirty pages to the subject. The history of this operation may be given in a few words. Stromeyer first suggested the possibility of its performance, and probability of success. Pauli first attempted to practise it; he divided the conjunctiva, but the eye was unsteady, and he could not divide the muscle. Dieffenbach was the first to perform it successfully, in October, 1839. The enthusiasm of imitators is not forgotten, nor the indiscriminate abuse which has apparently led many to estimate the operation below its true value.

Dieffenbach divides strabismus into active and passive; active when a muscle too strongly contracted overcomes its weaker opponent; passive, when a normal or healthy muscle draws the eye over, for want of opposition from a weak or injured antagonist. In this latter case the eye can scarcely be moved; the condition was formerly called luscitas. This appears to us to be an entirely incorrect view of the pathology of strabismus, in which complaint there is seldom or never anything faulty in the muscles themselves. The disorder lies in the nerves, or rather in their ganglionic centres, and essentially consists in a faultiness in the relative distribution of nervous energy to the muscles. If the *good* eye be closed, it is seen in a moment that there is no fault in any of the muscles of the affected eye, either in the way of over-contraction or weakness; in cases, that is, of true (or *active*) strabismus. In his account of *passive* strabismus, Dieffenbach seems to bring together two diseases which ought to be carefully kept distinct, namely, true strabismus and luscitas. In either case, according to him, the more powerful muscle is to be divided; and the greater the degree of contraction, the greater the propriety of the operation. In moderate degrees of passive strabismus, cauterization or excision of a portion of conjunctiva alone suffices to effect a cure. The nitrate of silver is applied deep in the angle of the eye, held for a second or two, and the eye then washed with cold water. Dieffenbach says a single cauterization in this manner will often permanently cure a moderate squint, partly by exciting the weak muscle, and partly by producing thickening and contraction of the conjunctiva and subjacent cellular tissue. Excision of a large fold of conjunctiva is followed by approximation of the edges of the wound and thickening of the cellular tissue, by which the eyeball is drawn into the proper direction. Cauterization often produces instantaneous change in the position of the eyeball, but the effects of excision appear only in the contraction of the cicatrix. Dieffenbach says: "I have cured a large number of slightly squinting persons by excision of a piece of conjunctiva, have never seen the opposite squint produced, and have but seldom found it necessary to repeat the operation. And further, the excision of larger pieces of conjunctiva has been performed by me in numberless cases with the greatest success, as auxiliary to division of the muscle on the opposite side of the eyeball in paralytic strabismus." (p. 167.)

Dieffenbach uses a speculum, two conjunctiva hooks, a blunt hook, and scissors. He is careful to divide the conjunctiva near the cornea in its almost bloodless part, and avoids wounding the vascular cellular tissue lying round the body of the muscle. He clears the muscle from the conjunctiva and globe with the closed scissors, or the blunt hook. In slight cases he simply divides the tendon, disturbing it as little as possible; in more marked cases he separates the muscle thoroughly from the globe by the blunt hook before division, and in cases of obstinate contraction with paralysis of the antagonist, he removes a portion of the muscle itself. In very prominent eyes, he divides the conjunctiva horizontally rather than vertically, thus avoiding separation of the lips of the wound during the motions of the eye, and ensuring a smaller cicatrix. In cases of strong squint inwards and upwards, not relieved by division of the internal rectus, he divides the superior oblique. The operation only differs from that of division of the rectus, by rolling the eye strongly downwards and outwards, and making the section of the conjunctiva higher up. We cannot conceive, however, that any good purpose can be answered by such a division. The action of the superior oblique, if it has any power of changing the position of the pupil, is to turn it downwards: if, therefore, it be divided, the effect of its antagonist, the inferior oblique, would be to turn the eye more upwards than before. But we do not believe that either of the oblique muscles has any influence in changing the direction of the optic axis; for all the most trustworthy experiments agree in indicating that their office is to rotate the globe *on its axis;* so that an inequality of action of these muscles on the two sides will not produce any convergence or divergence of the pupils, but will prevent that conformable rotation of the globes which should take place when the head is inclined to one side or the other, thus producing double vision whenever the head is otherwise than erect,—a case of which curious affection has lately fallen within our knowledge.

The errors in operating, which may give rise subsequently to squint on the opposite side, are the following: too large an incision in the conjunctiva, with extensive separation of the cellular tissue; loosening the attachments of the muscle far backwards; dividing the tendon, or the muscle close to the tendon, when separation from the globe has been practised; excision of a portion of the muscle, with separation; too long continued orthophthalmic after-treatment. But this accident seldom follows the more marked degrees of strabismus; it is generally observed after slight cases, in which the external rectus has retained almost undiminished power. In children, unless a very small wound be made, and the muscle simply divided without separation, the opposite squint is very apt to occur sooner or later.

To remove the opposite squint, the external rectus should be divided after free separation from the globe, and in some cases, a portion of conjunctiva may be removed from the inner angle of the eye. Should this not succeed, Dieffenbach removes a large piece of conjunctiva five or six lines in breadth, half from the globe, half from the caruncula lachrymalis. Then the external rectus is separated freely and divided; a ligature passed round the tendon, and this ligature fastened to a strip of plaster fixed like a saddle on the bridge of the nose, so as to draw the eye forcibly inwards. The thread generally separates in six or eight days, but Dieffenbach has left it twelve days. It excites no irritation of the eye, and the result is generally most satisfactory. Some most obstinate cases have been thus so completely cured, that not a trace of squint has remained.

In squinting of both eyes it is better to operate on one first, observe the effect, and by it regulate or moderate the second proceeding. Neither Dieffenbach nor Desmarres alludes to the necessity of operating on the better eye, either immediately, or at some future time, should the first operation fail to remove the squint. Desmarres is altogether silent on the orthophthalmic measures to be pursued after the operation. Dieffenbach insists upon the necessity of closing the sound eye, and exercising the weak muscle of that operated on.

We have not space to remark upon Dr. Desmarres' views of myopia and presbyopia; they are neither particularly novel nor useful.—The third part of his work treats of diseases of the lacrymal apparatus. He speaks highly of the practice of scarifying the Schneiderian membrane, in preference to the application of leeches to the eyelids or to this membrane. His surgical treatment, otherwise, is more worthy of reprehension than of comment from us. Dieffenbach has six chapters on these diseases. The elastic swelling caused by encysted collection of tears in the cellular tissue of the upper eyelid, dacryops, he treats by puncture as a palliative means; or extirpation of the sac by incision through the conjunctiva as a radical cure. Fistula of the lacrymal gland, opening in the upper eyelid, he treats by general means in cachectic cases; in healthy persons by division of the fistula, or excision of its borders, and subsequent union by suture. He treats hydatid tumours behind the lacrymal gland by puncture, seton, or excision of a portion of the sac. The operation for encanthis consists in the extirpation of the caruncula lachrymalis. When the puncta are closed by adhesion, he cuts away a small portion of the edge of the lid until the open canal appears. A bristle, softened by soaking in water, is then inserted, and left until the wound is cicatrized. Dieffenbach describes the different operations for restoring the canal, in cases where the nasal duct is impervious, without referring to catheterism by the natural opening of the duct in the nose. This is a grave omission; but is not to be wondered at, when we remember how universally, even in London, the barbarous practice of making an opening in the face and fixing styles in the duct is followed, although Mr. Morgan proved at Guy's Hospital, many years ago, that in the majority of cases, such treatment is totally unnecessary. We are convinced, after many years' somewhat extensive experience, that it is, as a general rule, as unnecessary to make an opening in the face to cure stricture of the nasal duct, as to open the perineum to cure stricture of the urethra. Yet the practice which in the one disease is properly reserved for extreme cases, in the other is made the common method of treatment, notwithstanding abundant proof that it is as easy to pass a sound or catheter from the nose along the nasal duct, as along the urethra from its natural opening. The barbarity of the method commonly pursued is increased by the fact, that the patient has to carry in his face a disfiguring mark of bodily imperfection.

ART. III.

Guy's Hospital Reports. Vol. VI. Part II. October, 1849. 8vo, pp 378. With Twelve Plates.

We have been more than usually pleased with this Number. The papers are just what Hospital Reports, in our opinion, ought to be; and we shall therefore present our readers, in this article, with a pretty full analysis of their contents.

I. *Cases selected from the ward-books of Petersham House, with remarks;* by John C. W. Lever, M.D.

This is an interesting paper illustrating several forms of disease. The first group of cases consists of uterine polypi, the special character of the growth being *vesicular* in six of the cases, *fibrous* in two, and *malignant* in two.

Dr. Lever's object in narrating the former of these, has been to draw attention to the symptoms which they usually produce, rather than to enter into any explanation of their nature, origin, and seat. The continued irritation of the surface of the womb which is in contact with the polypus produced central uneasiness, and pains in the loins, groins, and thighs. The neck of the uterus becomes affected with subacute or chronic inflammation; its glands are enlarged; there is sometimes hypertrophy, with induration, and, in most instances, superficial ulceration. The discharge is very like the decoction of quince-seed; and when ulceration is present, the glutinous discharge is usually mixed with one of a muco-purulent character, and occasionally streaked with blood. In some instances, as in Case iv here narrated, these growths coexist with polypi of a fibro-cellular structure. From one patient Dr. Lever removed seven in the course of eight years. They are equally common in the married and the unmarried, and frequently remain long undetected. The treatment is simple—removal of the growth either by the forceps or scissors; reduction of inflammation if, such be present, by local depletion; washing away discharges, and relief of pain by medicated injections, as the decoct. papav., with liquor plumbi diacet., and the cure of superficial ulcerations by the occasional application of lunar caustic.

The two cases of fibrous polypi do not call for any remarks. They were both removed by ligature. Dr. Lever observes that he prefers using the single tube whenever it is possible, as it is not so likely to injure the patient if she should make any sudden movement during sleep, nor is there the same necessity to keep her on her side as when the double canula is employed. In all cases where this operation is performed, the bladder should be closely watched, as much pain and fear may be occasioned by overlooking its distension.

In one of the cases of malignant polypus, the tumour was removed, to the great temporary relief of the patient. In doing this Dr. Lever advises the surgeon to use the largest whipcord that will pass through the canula, and only to tighten the ligature every other day instead of daily. If there be much hemorrhage at the time of operation, it will be advisable to employ the tampon, confining this by a compress placed over the vulva, and keeping all in position by means of the T bandage. Dr. Lever prefers the ligature, where practicable, to the application of nitrc acid, or the nitrate of silver.

Our author next narrates six cases of *pelvic cellulitis*, a disease which is very frequently overlooked or mistaken. In the majority of instances it is not caused by mismanagement or neglect during labour. It may follow abortion and labour, either premature or at the full term. It will come on after preternatural, complex, or flooding delivery, and is sometimes very prevalent during an epidemic of puerperal fever. The child born may be small or large; but in cases where there has been a want of proportion between the fœtal head and the pelvis, and where, consequently, the labour has been lingering, Dr. Lever has observed that the part of the pelvis affected corresponded with the position of the occiput, the left side being, therefore, most frequently involved. Patients of a strumous constitution are most susceptible of the disease. The symptoms usually supervene on the second or third day after delivery; in some instances they come on actively, in others insidiously; quickness of pulse, and anxiety of countenance being the most constant attendants. In all cases the secretion of milk, and the lochia are diminished, and in some they are arrested. Pain is a constant symptom, at first confined to the part inflamed, but afterwards radiating along the nerves of the region. The decubitus of these patients is most marked; they lie on the back or on the sound side, with the thighs flexed, and the affected extremity resting on the sound limb, and rotated inwards, precisely as in cases of diseased hip-joint. The disease terminates either in resolution, suppuration, or absorption of the inflammatory deposit. The abscess may burst externally or internally into the vagina and neighbouring viscera. Sometimes the matter burrows deep into the pelvis, and the bone becomes diseased.

In the treatment, local depletion, repeated according to the severity of the disease and the state of the patient's strength; warm poultices, simple or medicated; tepid anodyne injections carefully thrown into the vagina; attention to the state of the bowels, which are prone to irregularity; and the maintenance of a gentle mercurial action, are the most advisable means to be employed. The diet must be bland and nutritious, and the powers of the patient must be supported. When matter is formed, it should be evacuated, as soon as that can be done with safety. Dr. Lever has great faith in blisters for the purpose of hastening the external progress of the pus, and promoting the absorption of the induration which follows suppuration. For the latter purpose the iodide of potassium is also useful.

Case xviii is an example of *monocystic ovarian dropsy*, which is chiefly interesting as illustrating the advantage of not entirely emptying the sac when paracentesis is performed. The patient first came under Dr. Lever's care in 1844, and the last tapping took place in May 1849, there being throughout the whole of that period an entire absence of constitutional symptoms. On each recurrence of the operation however, a larger quantity of fluid was withdrawn, and the final result we suspect is not doubtful.

Case xix is a good specimen of the *apthous condition of the vagina*, which was cured by the use of a lotion of argent. nitrat., gr. ij ad ℥j.

Case xx is rare. The nymphæ presented an appearance as of spots of ecchymosis, and upon introducing the speculum, the mucous membrane of the vagina, as well as that covering the cervix uteri, was found to be similarly affected. The patient was a healthy young woman, married ten years, and having two children, the last three years old. She complained of severe pain at the lower part of the back, shooting up from the lower part of the abdomen, where she had also a bearing-down forcing pain. She passed her water with tolerable freedom, as also her motions, but she suffered severely from bearing-down pains when the bowels were relaxed. The uterus was retroverted, heavy, and tender.

Case xxi is an example of *abnormal formation* of the sexual organs. The vulva was placed more anteriorly than usual; the genital fissure was of the ordinary extent, but on inspecting the perineum, no anal aperture was discoverable, although in its place there was a slight depression of the integuments, of a paler colour than the surrounding parts. On passing the finger within the vulva, and pressing it slightly against the symphysis pubis, it readily entered the vagina, and could be carried along the canal to the os uteri, which was situated anteriorly, small, and its lips imperfectly developed. When the finger still within the vulva, was withdrawn to within one inch of the external parts, and then pressed downwards and backwards, it passed into the rectum; so that the two canals, vagina and rectum, were merely separated by a thin partition, entirely concealed within the labia; the termination of both being in one common cloaca.

This is followed by the record of three cases of tumour of the labium. The first, a simple fibrous tumour, does not require any notice. The second was an encysted tumour cured by seton. The third was a large sanguineous tumour, suddenly produced during an epileptic fit, the patient being six months advanced in pregnancy. In this respect it is remarkable, giving striking evidence of the violence of the muscular contractions during the fit.

Case xxv is an instance of division of extensive cicatrices of the vagina, resulting from severe and long protracted labour. The operation was successfully performed without injury to the neighbouring viscera, but the patient was seized with peritonitis on the third day, and the attack proved fatal. A low form of erysipelas was very prevalent in the hospital at the time. The case affords another instructive illustration of the danger attendant upon operations on and wounds of the vagina.

The next two cases are examples of *chorea* occurring during pregnancy. The irregular movements were in a measure controlled by treatment, but did not cease in either case until after delivery.

Case xxviii is an instance of suppuration in the lymphatic glands of the neck, and in several of the large joints, proving fatal in a few days. The woman had resided in a cellar contiguous to the common sewer, which, for some days previous to the attack, had emitted a most offensive smell.

The last two cases in this paper are interesting, rather morally than medically. In one pregnancy and delivery were feigned for the purpose of revenge; in the other the more common falsehood of denial was exemplified.*

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* There is a very funny misprint in the narrative of this case; the abdomen is represented as being found "*placid*, but marked with lines crescenting towards the groins"—a contrast to the *turbulence* of labour! We may take this opportunity of observing, that the editors would do well to attend a little more closely to the correction of the press. There are many other errors which should not have been left unnoticed.

II. *Case of Ptosis;* by John F. France.

The regular readers of these Reports will doubtless remember Mr. France's former paper on this disease, in which he demonstrated its cerebral origin. The case now recorded is particularly interesting as being a rare example of purely functional disorder. The patient was a female, aged 19, of moderately healthy aspect, but of a highly excitable temperament. She was a barmaid, and had been able to attend to her duties until the 20th July. On the morning of that day she experienced a continued quivering—"life-blood"—in the left upper eyelid, but was able to open the eye well. In the course of some hours, during which the above symptom persisted, the eye became painful on exposure to light; towards evening it became entirely closed, and could not be opened even in the dark, and a sensation of giddiness was the result. The intolerance of light continued, together with the inability to elevate the upper lid, either in the dark or the light, until her application at the hospital on the 23d. The right eye, meanwhile, was quite free from ailment of any kind. Her previous health had not been very good; the catamenia were habitually irregular, and had been absent for three months. Some months before she had been ill, retention of urine and flatulent distention of the abdomen being prominent features in her disease. She had suffered from globus and palpitation, but had never any hysterical fit. When first seen, the left upper eyelid was completely closed, and could not be separated from the lower by the effort of its proper muscle; the loss of power extended also to the anterior portion of the occipito-frontalis. The orbicularis, however, retained its contractility; and, owing to a great degree of morbid irratibility which existed in the neighbouring integument and conjunctiva, was thrown into spasmodic action when any attempt was made to raise the lid. The globe of the eye, when examined, was found quite healthy, and vision good; but considerable intolerance of light. There was no other paralysis of the muscles of the face; nor was motion or sensation impaired in any other part.

The case was successfully treated as hysterical. We quote Mr. France's account of the way in which he arrived at this diagnosis, because it appears to us a very admirable specimen of the right method of proceeding in circumstances of such a nature.

> "Before examining the real pathology of the foregoing case, it may be as well to notice the circumstances attending it, which altogether exclude the supposition that the dropped eyelid was a simulated complaint. I would not lay too much stress on the moral evidence forbidding that supposition; such as the desire of the patient to retain her situation and get well (which was attested through a different channel), and the fact that the disease was one which she had never seen an example of, and therefore could not imitate. Independently of these considerations, there was enough in the objective symptoms of the case to annul the idea of deception. Thus, it is a physical impossibility for any one either to create that partial muscular spasm, commonly known as the 'life-blood,' which was obvious to the by-standers at the outset of this case; or to cause that peculiar abnormal excitability of the pupil which marked its later stage. Nor, further, was the closure of the lid the mere instinctive result of photophobia; cases in which it is to apply by hundreds, and hardly admit of misconception. They are invariably relieved in direct proportion to the individual's seclusion from light, and both eyes invariably participate in the affection. The present, however, stood in obvious contrast to such cases in both these respects and therefore could have no pathological relation to them.

"Again, that it was not of identical nature with the ordinary instances of paralytic ptosis was proved by the general healthiness of the patient, by the entire absence of premonitory or concomitant cerebral symptoms; by the immunity of all the muscles supplied by the third cerebral nerve, except the levator of the lid; by the non-dilatation of the pupil; by the perfect state of vision, &c.

"The above considerations, by successively negativing the different hypotheses which might probably suggest themselves as to the essential character of this case, go far towards revealing its true nature, and at least clear the ground for a valuation of the more direct and positive evidence. The substantive proofs that the affection was hysterical are based on its history, its symptoms regular and anomalous, and the process of cure.

"As respects the history, the facts of most important bearing upon the case were ascertained, in great measure, from a collateral source, after the formation of the diagnosis, and the prescription of corresponding treatment. The facts referred to are those of the excitable habits of the patient; the irregularity of the catamenial flow; her frequent suffering from globus and flatulence; and the distinct attack of retention of urine. As respects symptoms, one directly indicative of hysteria was the intense morbid irritability of the integuments about the orbit of the conjunctiva, so that the least touch was shrunk from with apprehension; that irritability not being in relation with any apparent adequate cause, inflammatory or otherwise. Other symptoms, indirectly pointing out the same conclusion (from their anomalous character irreconcileable with any more ordinary form of the complaint), were, besides those already noticed, the one-sided intolerance of light, and exalted susceptibility of the iris,—the former symptom not found among, the latter opposed to, the phenomena of the common paralytic affection; and lastly, the simultaneous privation of power of the levator palpebræ and adjacent portion of the occipito-frontalis, which are functionally allied, but anatomically quite unconnected. The force of this sign is derived from the circumstance, that the other muscles of the groups, to which these respectively belong, all, without exception, retained their usual energy; and thus, in departing from the type of the true paralysis, which always corresponds with the distribution of the nerves, the disease betrayed that remarkable capriciousness so characteristic of hysterical complaints." (pp. 245-7.)

III. *Contributions to the anatomy of double monsters;* by Alfred Poland.

An analysis of this paper could not be made either interesting or instructive. We must therefore refer our readers to the original.

IV. *Considerations connected with the pathology and surgery of urinary concretions;* by B. B. Cooper, F.R.S.

The chief peculiarity in this paper is the advocacy of the doctrine that carbonic acid is the natural solvent of the earthy salts in the urine, and that their deposition upon foreign bodies in the bladder is due, not so much to the irritation produced on the mucous lining of the bladder, as to an action set up by them in the urine itself.

"It is well known," Mr. Cooper observes, "that any solid body, having an uneven surface, and offering points and asperities, will cause the rapid evolution of carbonic acid from any fluid impregnated with that gas: thus, for example, if into soda water, in which the effervescence from the spontaneous liberation of the gas has completely ceased, we throw a few pieces of the cutting of metal, or even bread or wood, gas will again begin to be given off from the fluid. If, then, we consider (and I think it scarcely admits of doubt) that carbonic acid is, at least in some measure, the solvent for the earthy constituents of the urine, it will at once be seen that the presence of a foreign body of irregular figure may cause the gradual but continuous discharge of the carbonic acid from the urine; and as the liberation of this gas takes place from the points presented by the foreign substance, it follows that the earthy matter, thus deprived of its solvent, is precipitated upon that body. This precipitation takes place, however, with extreme slowness; so much so, that the particles aggregate as they are deposited upon the nucleus. In addition to this natural aggregation of particles (which may always be observed when solid matter is deposited from a solution by slow degrees, even when regular crystals are not formed), the vesicle mucus seems to operate as a kind of cement, assisting in the consolidation of the calculus during its formation. . . . . If, on the other hand, the foreign substance be not of a nature to produce great irritation of the bladder, or to induce the liberation of gas; and if at the same time the fluid portion of the urine be from any cause diminished, or uric acid generated in excess; the deposit would probably consist of uric acid or the alkaline urates." (pp. 270-1.)

Several cases are narrated which seem to bear out these views, especially some instances of calculi partially inclosed in cysts, and presenting layers of the earthy phosphates on that side only which had been exposed to the action of the urine. Still, we think that more is to be attributed than Mr. Cooper seems to allow to the influence of the mucus, poured out under the irritation set up by the presence of the foreign body; that mucus exciting a catalytic action like a ferment, and thus producing decomposition of the urea and formation of carbonate of ammonia, which neutralizes the dissolving acid and precipitates the phosphates.

Mr. Cooper's views of the pathology of the various urinary deposits are quite in accordance with those held by the best observers, and his rules for treatment appear to us highly judicious.

V. *Select cases of hernia. Third series;* by E. Cock.

The first case narrated illustrates the danger to which a patient is exposed, who is the subject of irreducible omental hernia. The subject of this case was admitted four times with symptoms of strangulation, the last attack proving fatal after operation. In commenting upon it, Mr. Cock correctly observes that a portion of irreducible omentum, so far from forming a plug to the abdominal outlet, offers actual facilities for the future descent of intestine, at the same time that it, in great measure, renders abortive the usual means employed to prevent the recurrence of a hernia. It also renders the diagnosis and the treatment of every fresh protrusion more obscure, uncertain, and dangerous. Besides this, the surgeon must not forget that there is the probability of mischief from bands of omentum extending from the abdomen through the rings, and giving rise to fatal and irremediable obstruction. Mr. Cock appears, therefore, inclined to advise an operation in these cases, as the best and safest measure. He is a strenuous advocate for the external division of the stricture. When the patient will not submit to an operation, it is, of course, necessary that some mechanical means should be employed to prevent, as far as may be, the descent of intestine. For this purpose, instead of a truss, Mr. Cock places a pad, closely stuffed with wool, over the tumour, and secures it in its position by a roller of caoutchouc-webbing, a few turns of which are passed round the loins and the thigh, so as to form a figure of 8 crossed over the groin.

The succeeding cases afford additional proof of the value of calomel and opium in the treatment after operation, and of the advantage of abstaining from aperient medicines. In one case, the bowels were not relieved for nine days, during the whole of which time the patient steadily improved. Free evacuations were then procured by a simple enema.

The same case is also very instructive in another respect. When the sac was opened, the intestine was found black, with a narrow band of omentum, black and gangrenous, coiled round it. The parts were carefully separated, the omentum excised, and the bowel returned into the abdomen. In doing this, Mr. Cock remarks :

> "I followed a principle of which experience has taught me the value,—that the safest place for an intestine not actually perforated, but which is in a doubtful condition, and of which any portion is likely to lose its vitality, or to become opened by ulceration, is the abdomen. By restoring the gut to the peritoneal cavity, we afford a fair opportunity for the meaning of any subsequent breach in its coats and for the preservation of the integrity of its canal, by the adhesions which it may contract to the opposite serous surfaces. I believe the patient will thus have a better chance of recovery than that afforded by trusting to the forlorn hope of leaving the bowel in the hernial sac. I some time ago operated on a young woman, in her fifth month of pregnancy, and returned the bowel without opening the sac. She went on favorably for a week, when she miscarried, and died of hemorrhage. On examining the portion of intestine which had been strangulated, I found a piece about the size of a shilling, including the whole thickness of the gut, had been completely separated, although not yet thrown off, by a process of sloughing. The breach, however, was accurately patched by adhesions to the neighbouring intestine, and no reasonable doubt could be entertained, but that, had she lived, the reparative process here exerted by nature would have been perfecily successful." (pp. 316-7.)

VI. *On mania, coexisting with uterine disease ;* by John C. W. Lever, M. D.

This paper contains the history of two very interesting cases, illustrative of the following propositions, of the truth and importance of which we are deeply persuaded :

1. That mania, developing itself in the female, is sometimes associated with, and depends upon, organic disease and irritation of the sexual organs.

2. That, unless remedial measures be applied to relieve such disease or irritation, the symptoms of insanity will be permanent.

3. That, in selecting the proper treatment, attention must be specially directed to the nature of the local disease.

4. That in most cases there is a diminution or cessation of the catamenial flux.

5. That at the close of the treatment counter-irritation in the neighbourhood of the sacrum is a valuable auxillary.

6. That by pursuing this plan of treatment, before the symptoms of insanity become confirmed, in many cases it will be attended by success.

VII. *Description of some of the tumours removed from the breast, and preserved in the museum of Guy's Hospital ;* by E. Z. Birbett, M. D.

An analysis of this paper would be of little use. It is illustrated by six plates.

VIII. *Case of complete placental presentation, treated by separation of the placenta and the application of electro-galvanism ;* by W. A. Skinner.

This was a dangerous case brought to a successful issue by the means adopted.

IX. *A case of labour, complicated with a double state of the internal* *sexual organs; and a report of other cases of defective development of the female sexual organs;* by Henry Oldham, M.D.

This is a communication replete with interest and instruction, and to which we would desire specially to direct the attention of our readers.

Dr. Oldham's assistance was requested in a first labour, the surgeon in attendance being unable to find the os uteri. The patient was 21 years of age, of diminutive stature, and girlish look. She had been in labour for some hours, and the pains were strong. On examination, a globular body, resembling a fœtal head, was found in the pelvic cavity, but completely covered over by the sac which contained it, and which had no aperture. Dr. Oldham observed, however, that this body was more on the left than on the right side of the pelvis, and that the finger could not pass entirely around it at an equal height. An external exploration of the abdomen also showed that the uterus occupied, in a very marked manner, the left side, while the right was flattened and resonant. These discoveries led to the supposition, that there might be a double vagina; and by another digital examination, directed more particularly to ascertain this, another passage was discovered, with a smaller external aperture, leading directly to the fœtal head. The labour was completed naturally. Six weeks afterwards Dr. Oldham again examined the sexual organs. The septum, which formed the bipartite vagina, was found complete throughout; it was a dense, well-organized tissue, sufficiently loose and elastic to stretch to either side of the vagina, without causing pain, so that both canals were equally capacious, and no feeling of constriction, or indeed any notable peculiarity, would have been observed in either of them. The os uteri on the left side was rather large, and fissured in its anterior lip; the uterine sound curved very distinctly to the left side, and passed rather more than two inches and a half. The right os uteri was of virgin smallness, and its edges smooth and even. The sound passed to about two lines short of the two inches and a half, and curved very perceptibly to the right side. There had been no impediment to sexual intercourse, and during pregnancy the catamenia had been completely suspended. Two preparations of a similar abnormal formation are preserved in the museum of Guy's Hospital. It is interesting to observe, in the above case, that when one uterus was impregnated, the catamenial functions of the other were suspended at the same time.

Dr. Oldham also relates two cases of double uterus, with a single vagina, which were diagnosed during life. In the first a septum of the cervix was first detected, and the sound revealed the rest. In the second, the separate cornua could be felt through the abdominal parieties; the patient lay upon her back, with the knees drawn up, the index-finger of the right hand then fixed the cervix, and the body was felt by pressing the fingers of the left hand into the inlet of the pelvis. This is a method of examination which Dr. Oldham has found extremely useful in many cases.

This is followed by a case of congenital absence of the internal sexual organs.

The undersized womb. Dr. Oldham has met with many cases in which the uterus has retained some of the characteristics of the infantile condition, being smaller and thinner than usual, with a diminutive cervix, and corresponding small aperture. He has also found the longitudinal striæ in the cavity of the body of the organ, which in the healthy, full-sized, virgin uterus are confined to the cervix. The vagina in these cases varies a good deal. Sometimes it is well formed, and in full proportions, but generally it is short and shallow, and rather contracted at its orifice. The principal signs of such a condition are scanty and generally painful menstruation, and, in the married woman, sterility. Amenorrhea, for two or three months or longer, without any known cause, and without chlorosis, generally forms a part of the history of these cases.

It is of importance that this condition of parts should be well known; for it is quite apparent that the adoption of mechanical means, to relieve the dysmenorrhœa, or to cure the sterility, would only be productive of mischief.

Dr. Oldham has noticed two complications, which are deserving of attention. The first, of which he has seen one example, is a disease of the cavity; we quote the case:

> "A married woman, an out-patient of mine at the hospital, who had the characteristics and history of this organic defect of the sexual system, began, three years after marriage, to have a thick white discharge, sometimes streaked with blood. She came under my care after five weeks' spotting of the red discharge, having all the aspect and emaciation of phthisis. Her lungs were carefully and frequently examined, but without detecting any tubercular disease. On examination by the speculum, I found that the discharge was not yielded from the vagina or cervix, which was healthy; but, as I pressed with the speculum, a small quantity oozed out from the os uteri. This was not the mucus from the cervix, but presented the characters of broken-up tubercle, imperfectly mixed with blood." (p. 367.)

This disease, a true *uterine phthisis*, is not confined to the above type of womb. Dr. Oldham has carefully examined four specimens, and believes—

> "That *the glandular system of the cavity of the body of the uterus* becomes filled with scrofulous matter. This at first swells out the lining membrane; then it begins to break up, and, with the escape of the matter, the inner surface becomes ragged and deeply furrowed, and the uterine walls consume; that is, become thinner and thinner. This goes on equally over the whole surface; but in one specimen the breaking-up process had gone on so deeply towards one horn, as to form a cavity there, and, had the patient lived, I think it would have gone through the uterine peritoneum, unless its progress had excited inflammatory adhesion around it. This disease is *strictly confined to the cavity of the body of the womb;* it does not touch the cervix; but a clear line, separating the diseased from the healthy structure, exists at the os internum. In one specimen in our museum, the vagina is attached, but the cervix is free." (p. 367.)

The other complication, to which reference was made above, is an anteversion of the body of the uterus, caused by a weakened state of the tissue of the organ, which renders it quite flexible. Dr. Oldham has never seen a true retroversion of the undersized womb.

How, then, are the dysmennorrhea and the sterility to be cured? Dr. Oldham believes that much may be done by hygienic means and proper constitutional treatment, and lays down very judicious rules to this effect. He is, as is well known, most strongly opposed to all mechanical treatment. Where the womb is undersized, it is perfectly clear that neither dilatation nor supporting can do anything to remedy the defect, and no *prudent* practitioner would, we think, attempt either. We also most perfectly coincide in the opinion, that it is quite impossible to fix a standard size for the inlet of the womb; and that, to attempt forcible dilatation, merely because, in any particular instance, the aperture is small, is mischievously meddlesome practice, which may prove fatally injurious, as we shall show immediately by most lamentable proofs. In judging of the existence or non-existence of morbid contraction, respect must be had to the *relation* of parts. A small orifice in a small cervix is natural; the same sized opening in a long, bulky cervix would be abnormal. Cases of the latter kind do, every now and then, occur, and have been effectually and safely remedied by mechanical means, either dilatation or incision. The last operation is the most speedy, and perhaps the most effectual, but we have known formidable hemorrhage result from it.

We agree, again, with Dr. Oldham, in doubting the frequent relation of cause and effect between displacements of the uterus and sterility: because we cannot see that these curvatures of the body of the womb are sufficiently decided, at least in the great majority of instances, to prevent the passage of the seminal fluid towards the ovum. Nor, even granting that such may sometimes be the result, can we have any confident hope of cure from the use of the uterine stem-supporter. We remember a case in which an instrument of that kind had been worn for many months, but the uterus immediately fell back into its old place, whenever the support was withdrawn. It could not, therefore, have remedied sterility.

But though, in the instance just named, and in others which have come to our knowledge, the instrument in question was productive neither of suffering nor injury, it is now too plain that such is not always the case; that these mechanical means, if inoperative for good, are not invariably so as regards danger of the most formidable kind. And therefore we feel it a duty to lift our voice in solemn warning, and to urge, at the very least the extremest caution in the employment of such expedients. To arrive at a doubtful good by means that have been *proved* to be fatally dangerous, even in well-skilled hands, is scarcely consistent with right principle. But example is ever more effective than mere precept, and therefore we shall quote *in extenso* the two most melancholy cases which Dr. Oldham has here put on record.

"On April 7th, 1849, I received from Dr. Golding Bird the uterus and appendages of a lady who had died from peritonitis, excited by attempts to cure sterility by mechanical dilatation, whose history, as furnished to me by Dr. Bird, is as follows, and with whose concurrence I publish it:—A lady of dark complexion, aged 36; married several years, and never pregnant; resided in Jamaica. From youth she suffered intense dysmenorrhœa, and always had pains during sexual intercourse. She was nervous, hysterical, and excitable to the last degree, and was supposed to have suffered from every possible form of inflammation; these attacks obviously being neuralgic, so common in hysterical women. In June last, by the advice of her physician in Jamaica, she came to London for the express purpose of having the os uteri dilated, which had already been attempted by wax dilators. The obstetric physician who was consulted in London coincided in this opinion, and thought the sterility and dysmenorrhœa depended on a stricture of the os uteri. He divided the os uteri with a cutting instrument, and introduced silver dilators. This produced horrible suffering; and although at first she fancied the pains of menstruation were rather better, they soon became as bad as ever, and she did not experience the slightest relief. She left off the treatment for a time, but was soon again inclined to resume it; and silver canulæ were passed into the os, and left there. Again she suffered frightfully. On Saturday, March 31st, a gentleman, the assistant of the physician, passed in another tube, but the distress was intolerable; and sickness and shivering coming on, she urgently begged her sister to try and remove it, which she succeeded in doing. Getting worse, a neighbouring surgeon was summoned, and he found her labouring under what he regarded as peritonitis masked by hysteria. She had scarcely any fever, collapse coming on almost immediately, and she continued sinking until Tuesday, when I (Dr. G. Bird) was summoned to her. I found her at her sister's residence, at T—— Park, presenting almost the collapse of cholera: pulse 200, and a mere thread; distended abdomen; vomiting of black fluid; intense irritability. All treatment was useless, and she soon sank. On examining the body, and raising the omentum, no appearance of disease of any kind was found above a line connecting the anterior superior spinous processes of the ilia. Below this line there was intense peritonitis: the convolutions of the intestines, covered with butter-like lymph, and the pelvis filled with pus-like fluid; the right ovary and broad ligament covered with the same butter-like lymph, but so freely adherent, that it washed away by dipping it in water; the cavity of the uterus was filled with bloody mucus. There was no other disease.'

"The uterus and appendages examined by Dr. Oldham:

"The uterus had been opened by a single oblique division of the anterior wall, directed from the cervix to the left angle of the womb. The uterus was larger than usual for the virgin; it was rounded on its anterior surface, and a bulging convexity of the posterior wall, which, with the general softness of the tissue, showed it to have been the seat of recent engorgement. The blood-vessels over the entire surface of the uterus and appendages were injected with blood, especially the fimbriated extremity of the tubes, the ovaries, the broad and round ligaments. On the anterior surface of the body of the uterus were two small, projecting, fibrous tumours, the size of a large and small pea; the serous investment of them was highly vascular, the blood-vessels rising over them just like the calyx of the ovarian ovum of the bird. There was a similar, more flattened growth in the posterior wall. The divided surface of the anterior wall showed its proper structure to be much enlarged (it measured in the body eight lines); the muscular structure was soft, and the veins large: a probe easily ran through them. The length of the united cavities was two inches and ten lines, the canal of the cervix being one inch five lines. The mucous membrane of the cavity of the body was soft, slightly raised, and of a vermilion hue. Agitation in the water was sufficient to loosen and separate it. At the os uteri internum there was a zone of highly-injected blood-vessels, broken only at one point; the circumference of the aperture was eight lines. The os externum had a clean, smooth edge, without any break or mark of division; its circumference measured one inch one line. The cervix had its characteristic markings, and the glands were empty of mucus. On the right side of the divided cervix, which would have formed the front wall, the ribbings were stretched upwards, enlarging the mesh-like appearance; and towards the os internum some were lacerated transversely, and from this to the os externum the structure was more ragged than usual.

"*The right Tube.* The extremity of this tube was almost entirely closed as a congenital formation, the aperture being very small. When opened, the fimbriated end showed its characteristic rich folds of mucous membrane, which were much injected, and were covered with bloody mucus. The remaining two thirds of the tube was apparently healthy, not vascular, and pervious throughout.

"The right ovary, which was almost covered with lymph, was soft and large. There was a cyst large enough to hold a small nut on the uterine end of the ovary. The stroma was gorged with blood. There was only one puckered Graafian follicle. The surface of the ovary was thick and corrugated.

"The left ovary was irregular in its shape, a projecting mamillary portion coming out from its outer end. This, on being cut into, was hard and vascular, like the commencement of malignant disease; the ovarian tunic was thick and wrinkled; the stroma vascular; a few remains of Graafian vesicles, with puckered tunics, and some clots of different colours, black and brownish. The left tube vascular at its fimbriæ, healthy in its mucous membrane, and its canal pervious throughout. This tube passed into the uterus more directly than its fellow, which was more curved. The veins healthy; the arteries healthy; the right round ligament large and vascular; vagina healthy.

"It is unnecessary to comment at length on this case. It affords a most instructive example of the dangerous effects of dilatation, even in experienced hands, and the great caution with which it should be undertaken. It is important, too, as showing the difficulty of detecting the cause of sterility. I am sure that there was no kind of morbid contraction in this case, and that the os and cervix uteri, which were alone treated, had nothing whatever to do with the dysmenorrhœa or sterility. Both of these, no doubt, were dependent on the atrophy of the ovary; and the congenital obliteration of the end of the right tube would have been sufficient to exclude the corresponding ovary from any share in the function of reproduction."

The next case exemplifies the dangers attendant upon the use of the uterine stem-supporter. It was related to Dr. Oldham by Mr. Bransby Cooper:

"A young married lady, of great personal attractions, was attended by Mr. Cooper, for a very painful fissure in the anus, which he divided and speedily cured. She then spoke to him of what had been to her a very distressing social trouble, namely, her sterility, which she associated with a perfect indifference to sexual intercourse. Mr. Cooper examined the sexual organs; but as he did not discover any defect which could be remedied by surgery, he referred her to a physician-accoucheur. This gentleman detected the uterus in a retroverted state, which he looked upon as the probable cause of the sterility. For the cure of this displacement, he introduced a uterine stem-supporter, which set up peritonitis, of which she died in three days."

Art. IV.

1. *Sketches of the Medical Topography and Native Diseases of the Gulf of Guinea, Western Africa.* By William F. Daniell, m.d., Assistant-Surgeon to the Forces, &c.—*London*, 1849. 8vo, pp. 200.
2. *A Treatise on the Public Health, Climate, Hygiène, and Prevailing Diseases of Bengal and the North-West Provinces.* By Kenneth Mackinnon, m.d., Surgeon and Medical Storekeeper.—*Cawnpore*, 1848.

The various questions which are connected with the characters and sources of the diseases commonly regarded as peculiar to tropical climates, can no longer be looked upon by the British pathologist with the indifference with which they have been hitherto much too commonly regarded. That a philosophical survey of them will add much to our knowledge of morbid phenomena in general, by presenting us with those phenomena in their more intense form;—that a careful study of their etiology will throw great light upon the causes of disease in our own country, by showing the unmistakeable and immediate operation of departure from the laws of health, whose influence is less ostensible, because less rapid and direct, in temperate climates;—and that the influence of preventive or hygienic measures, both of a public and a personal nature, as well as of systems of medical treatment, may be put to the test most advantageously where the want of them most exaggerates the influence of other morbific causes;—are positions which no one, we venture to affirm, will now be disposed to dispute, who has taken this subject into serious consideration. We have already taken occasion to point out, for example, in regard to cholera, how the fearful experience of Kurrachee* and Bellary† has demonstrated that if the unavoidable agency of the cholera-poison destroys its scores, that of the cholera-poison *plus* overcrowding, with its attendant evils, destroys its hundreds. And we are confident that there is no such *necessity* for a high rate of general mortality, amongst Europeans in tropical climates, as is commonly supposed; and that, on the contrary, *if due precautions be taken*, there are few situations in which the rate of mortality need surpass that of many of the less healthy town districts in our own more salubrious climate. We shall hereafter adduce evidence which will go far, we think, to justify this belief; and to show that if, instead of sitting quietly down in the conviction that tropical diseases are necessarily fatal to a certain average proportion of Europeans, less or more, in every station, the authorities, medical, civil, and military, would set themselves to discover the sources of disease, by a comparison of the conditions of the least and most healty sites, and of the personal habits of the least and most healthy classes, and to remove these sources when detected, the result would be a diminution in the liability to disease and in the rate of mortality, such as no one could have ventured to anticipate.

But here, as in many other instances, we have to complain of the very small degree of attention which has been too frequently given to medical representations by the civil and military authorities. There is scarcely a page of Dr. Mackinnon's work which does not bear testimony to the justice of this complaint. It is not merely of their apathy, that the medical officer has to complain. It is too frequently the case that the attempt to draw attention to the imperfection of the existing barrack-accommodation, sanitary regulations, &c. causes the medical man to be regarded as a troublesome meddler; and becomes a bar to his advancement, instead of being considered (as it most assuredly should be) an evidence of his intelligence and zeal. "It has been suggested to me by a friend," says Dr. Mackinnon, "that my remarks regarding public health and the sanitary regulations existing in this country, are too freely spoken. I cannot think so, for I describe things as they are; and it ought not to be displeasing to a great, just, and benevolent Government to know the truth." In other parts of his work, he gives every credit to the supreme government for its desire to promote sanitary improvements, but laments the want of co-operation among the subordinate officials.

It is not at present our intention to go into the subject of Tropical Hygiène in any detail; but there are a few points to which we would direct the attention of our readers, as of special interest at the present time.—One of the most fertile sources of tropical disease, aggravating immeasurably the influence of every other morbific cause, is imperfect house accommodation. This has now been clearly proved in a great variety of cases. Wherever barracks or tents are habitually overcrowded, there do we find a high rate of mortality. This shows itself most fearfully on the visitation of any severe epidemic, as in the cases of Kurrachee and Bellary already referred to; but it is by no means confined in its operation to such special occasions. It is manifested in every station which has a reputation for unhealthiness, in the higher rate of mortality of the soldiers above the officers; and frequently where two detachments are quartered in different barracks, the one habitually overcrowded, and the other not so, in the marked difference in their average annual rate. The former difference is doubtless to be attributed in part to the superiority of the general habits of the officer over those of the private; more especially since, in India at least, there has been much less of intemperance among the officers than formerly prevailed, whilst that of the privates remains much the same, except in particular regiments. Of the latter source of difference, it will be easy to furnish adequate proofs. Thus Dr. Mackinnon tells us that the European regiment stationed at Dinapore is quartered (with its women and children) in two ranges of building extremely hot, confined, and ill-ventilated. In May, 1847, the 98th regiment lost *sixty men*, whilst there was *not one* death among the Artillery living within a few yards, but in better barracks. Again, we have had occasion to examine into the medical reports of the regiments stationed during a succession of years at Secunderabad, which enjoys the reputation of being one of the most unhealthy stations in the Madras command. The average mortality among the European troops of the line at this station for the fifteen years previous to 1846-7, has been 75 per 1000; this being *nearly double* the average of the entire Presidency, which is (according to the average drawn by Col. Sykes from the returns for the last twenty years) scarcely more than 38 per 1000; and *more than double* the average of the more healthy stations,—the average of the entire command being of course raised by the high rate of mortality in one fifth part of the force. Now the complaints which have been made, year after year, by the medical officers of these regiments, leave no room for doubt as to the chief cause of this excess; for the regiment of the line quartered at Secunderabad has been always crowded in barracks so insufficient for its accommodation, that one third of the men have been obliged to sleep in the verandahs, whilst the remainder have by no means a due allowance of fresh air; whilst on the other hand, the officers of this very regiment, who are better accommodated, and the detachment of artillery quartered in more roomy barracks at no great distance, have never participated in this unusual mortality,—thereby clearly showing the absence of any special causes of disease at this station, which might not be easily removed. We have been glad to see, by the most recent returns, that this matter has at last attracted the attention of the proper authorities, and that measures are in progress for putting the barrack-accommodation upon a proper footing. That the annual rate of mortality will then be brought down to the usual average, or even below it (if the barrack accommodation be now made better than that of other stations, instead of being worse), we most confidently predict; the same result having already occurred in other cases. Thus, such of our readers who remember the fearful rate of mortality among the troops at Hong Kong during the first years of its occupation by the British, have doubtless remained possessed with the belief that the station is a very unhealthy one. Such a belief, however, would be far from correct. The mortality in 1842 was at the rate of 19 per cent., or 190 in 1000; in 1843, it was 22 per cent., or 220 in 1000; and in 1844, it was 13½ per cent., or 135 in 1000. But during these years, the garrison was very badly accommodated; in 1845 their accommodation was greatly improved, and the mortality diminished to 8½ per cent., or 85 in 1000; and since that time, the troops having been lodged in what may be termed, from their excellence, "model" barracks, their mortality at once dropped down to 2½ per cent., or 25 in 1000 ; a rate not much exceeding that of stations esteemed healthy.

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* See Vol. II, p. 68.

† See Vol. III, p. 28.

That an efficient system of drainage, for the removal of the surface-water and of animal excreta, must be of yet greater importance in tropical climates than in temperate, owing to the increased rapidity of decomposition in high temperatures, is a point about which there can be no doubt whatever ; the influence of the continued heat of summer, in augmenting all those diseases of our own country which are in any way dependent upon causes of this nature, affording evidence of this truth, which every one can appreciate. It is clearly where the natural drainage is most imperfect, where a rank vegetation affords a constantly renewed source of decomposing organic matter, and where a high temperature at the same time favours the development of vegetable life and the decay of its débris, that we have the most fertile production of the most potent morbific agencies. The western coast of Africa has long enjoyed a bad eminence in these particulars ; and the Bight of Benin seems to contain a concentration of all that is most to be dreaded, presenting, as it does, a vast expanse of alluvial swamp, continually inundated by the influx of the tides, and exposed during the whole year to the vertical rays of the torrid sun, as it is nearly under the equator. The characteristic features of these shores are thus described by Dr. Daniell.

> "They preserve here the same dull and unvarying outline of one vast alluvial and densely wooded forest, extending over an area of at least one hundred thousand square miles, partially irrigated by the Atlantic tides, and intersected by numerous rivers and creeks, whose muddy banks are unceasingly overflowed. At the distance of several miles from the coast, the peculiar odour arising from swampy exhalations, and the decomposition of vegetable matter, is very perceptible, and sometimes even offensive. The water also is frequently of a dirty hue, with leaves, branches, and other vegetable débris floating on the surface, brought down from the interior by innumerable narrow channels, that empty their turbid streams into the open ocean." (pp. 14-15.)

Their general influence upon the "unseasoned" stranger is thus ominously, but not untruly, set forth in an old doggerel rhyme, supposed to date its origin from the period when the English traders were zealously engaged in the slave trade.

"Beware and take care of the Bight of Benin,
For if one comes out, twenty stay in."

Of the whole of this part of the coast, the Rio Formosa is considered by Dr. Daniell to be the most deadly ; and he gives the following fearful example of the mortality, which would not seem to be uncommon among its European visitors.

> "When I visited this river in 1839, I found two vessels moored a short distance from its mouth, one of which, within the space of five months, had buried two entire crews, a solitary person alone surviving ; the other, which had entered at a much later period, had been similarly deprived of one half of its men, and the remainder were in such a debilitated condition, as to be incapable of undertaking any active or laborious duty. Another vessel sailed form this port, previously to my arrival, in such a deplorable state, as to be solely dependent on the aid of Kroomen to perform the voyage homewards. After a stay of several weeks at the anchorage opposite Jacqua creek, the ship to which I was attached became so

unhealthy, that we were under the necessity of recrossing the bar into a purer atmosphere, having lost one third out of a complement of eighteen men. *And yet, amid these regions so rife with disease and death, I have known Europeans reside for a number of years in the enjoyment of good health, from the simple secret of moderately conforming to the habits of the natives, as regards the diet, exercise, and attention to the due performance of the cutaneous functions.*" (pp. 60-1.)

The last sentence, which we have taken the liberty of italicising, deserves in our apprehension to be imprinted on the memory, and made the constant guide, of every one whose lot is cast in regions where the sources of disease are rife; since we are convinced that it embodies the true secret of resistance to these morbific influences;—not that the most rigorous attention to such a rule will ever give to a European an immunity from the morbific agencies to which the natives themselves are subject; but it will go far to place him on the same level with them. A remark of precisely the same tendency is made by Colonel Sykes, in his valuable paper, on the Vital Statistics of the Indian Army,* to which we shall presently have occasion again to refer. "*The climate of India,*" he says, "*is less to blame than individuals; for, in case foreigners find the people in a country healthy, they should to a certain extent conform to the habits of the natives, to be healthy also.*" We shall presently adduce statistical evidence, from Colonel Sykes' paper, of the truth of this position; but, before leaving the African coast, we may notice another source of disease, to which in this country we seldom attach great importance, but which, when exaggerated by the multiplication of animal life, deprives the unhappy sufferer of refreshing rest, and induces in his system a special predisposition to be acted on by the miasmatic poison or other morbific agencies.

> "It must, however, be borne in mind, that while these maritime districts are thus abundantly fraught with those influences which give rise to this unfavourable condition, their deleterious effects have been much augmented by a series of petty and vexatious annoyances to which all Europeans are subject who come within their sphere. The slimy mudbanks and alluvial swamps, it is well known, generate myriads of musquitoes and sandflies, and these insects so vigorously attack all who reside where they abound, as to prove exceedingly troublesome. In vain the wearied seaman seeks for repose; his winged tormenters multiply as the night advances, and, ever on the alert, incessantly hover around him, until he is at length forced to succomb to their harassing inflictions, and unwillingly hastens upon deck, there to await, in no happy mood, the break of morn. Heavy toil by day, with broken and unrefreshing slumbers, will soon undermine the strength of the most hardy; and hence it is that these, in conjunction with other apparently trivial causes, amply predispose the unseasoned stranger to the attacks of endemic typhoid affections, from which so few have as yet recovered." (p. 59.)

Now, in such localities it is impossible but that the rate of mortality should be high, however prudent may be the personal habits of the resident. Still we must reckon the marine swamps of western Africa and the jungles of the Gangetic delta as among the *preventible* causes of disease; since it is certain that, if ever it should become worth while to render these localities habitable, an efficient system of drainage will completely alter their character. We remember the time when Demerara had nearly as bad a reputation as Sierra Leone; yet it now ranks, we believe, among the most healthy of the West Indian colonies, and this chiefly in virtue of the extensive drainage which has been effected in its wide alluvial tracts, at once increasing their fertility, and rendering them capable of being healthfully tenanted by European residents. We much doubt whether *any* considerations of state policy can justify the vast expenditure of human life and health, which has been long going on in the military stations of the western coast of Africa. Thus we find from the statistical report of Major Tulloch that, out of 1758 white troops sent out to these stations from 1822 to 1830, no fewer than 1271 perished from climatic diseases; while of the 387 which remained to be sent home, 17 died on their passage, 157 were described as incapable for further service, and 180 as qualified only for garrison duty; thus leaving only 33 men who were reported as fit for active service.

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* Journal of the Statistical Society, vol. x, p. 124.

The records of our naval service since the establishment of the coast-blockade, whose inefficiency for its destined purpose has now become so notorious, tell an equally fearful tale; but on this we need not dwell, since the cases of the Eclair and of its predecessors must be fresh in the memory of our readers. But as in the land service a large amount of the mortality may be fairly attributed to the unwholesome condition of the barracks in which the troops are lodged, so at sea much may be accounted for by the deficient ventilation of the sailors' berths, and by the accumulation of filth in the ship's bottom. No one can doubt the potency of this second cause in the case of the Eclair; and it must act with vastly greater energy, when the emanations, constantly oozing up from below, are stagnated through the imperfect renewal of the air above.

When all that *can* be done by drainage, ventilation, cleanliness, &c., for the welfare of the residents in the tropical climates has been effected, their rate of mortality will depend in a great degree upon causes over which each individual has a personal control, and he alone. Upon this point Dr. Daniell remarks:

> "Could those causes of disease which have hitherto been ascribed to climatorial alternations be more thoroughly investigated, I apprehend we should discover that no small number were founded on very inconclusive data. It is a well-known fact that the notorious insalubrity of Africa has frequently served as the scapegoat on which the blame of the evil consequences (resulting from the reprehensible indulgence of dissipated courses) might be unreservedly thrown, without the risk of their being disputed or even questioned. When we seriously reflect on the impaired constitutions of two thirds of the human beings who frequent these colonies, recklessly indifferent as to the price of life, we require no further argument for the rational explanation of those abnormal states of the system that so largely swell the amount of victims in these occasional and almost inexplicable pestilences." (p. 13.)

Colonel Sykes is not less explicit:

> "I have a strong conviction," he says, "that much of European disease in India is traceable to over-stimulus, and that the mortality among the European troops will not be lessened, until the European soldier is improved in his habits, until he is made to understand that temperance is for the benefit of his body, libraries for the benefit of his mind, exercise for the benefit of his health, and savings' banks for the benefit of his purse."

All these points are well and strongly urged also by Dr. Mackinnon in the treatise before us; we prefer confining ourselves, however, on the present occasion to one point which is especially dwelt on by Colonel Sykes, —namely, abstinence from the excessive use of fermented liquors; and, if they *must* be provided for the soldier in India (and Colonel Sykes does not profess himself to be a disciple of the total abstinence system), the substitution of beer for distilled spirit. The influence of this latter measure is considered by Colonel Sykes to be statistically proved by a comparison of the per centage annual mortality from sickness of the three armies of Bengal, Bombay, and Madras, which, for the last twenty years, has been as follows, excluding the mortality from cholera in Scinde :

	Bengal.	Bombay.	Madras.
Native . . .	1·79	1·291	2·095
European . . .	7·38	5·078	3·846

Now this table presents some very remarkable features. In the first place, the striking contrast between the rate of mortality of the European and of the Native troops serving together and exposed to the same morbific causes. Secondly, the great difference between the mortality of the troops serving in the different presidencies. And thirdly, the circumstance that in the Madras presidency the rate of mortality is *highest* among the Native troops, and *lowest* among the Europeans.

> "I will not say that the question is absolutely solved by the reply 'habits of life;' but I will say, reasoning from analogy, that the reply goes a great way to solve it. The European soldier in India is over-stimulated by food, over-stimulated by drink, and under-stimulated in mind and body. The European soldier eats a quantity of animal food every day of his life; he drinks a quantity of alcohol every day of his life to the amount of a bottle of spirits in five days, two drams being served out to him daily, and he has not any mental and little bodily exercise. Happily the pernicious practice has been recently discontinued; but time was when the European soldier was compelled to take his dram by eight o'clock in the morning, with the thermometer varying from 70° to 90° or more at different seasons of the year, leaving him in a state of nervous irritation and thirst, which could only be relieved, as he thought, by further potations; indeed, I have been assured within the last few days by a pensioned artillery staff-sergeant, *who never drank in India, and was only in hospital five days during twenty-one years' service*, that he has known, out of a detachment of 100 artillerymen, no less than eight men in strait-jackets at one time, absolutely mad from drink. Now, animal food with the assistance of such an auxiliary, and combined with mental vacuity, go far to account for the excess of mortality amongst Europeans."

The question next arises, why the mortality of the European troops in the Madras presidency should be so much less than that of the others, being about *three fourths* that of the Bombay troops, and but *little more than half* that of the Bengal army; whilst, on the other hand, the mortality of the Native troops in the Bombay army is but *little more than two thirds* of that of the Bengal army, and *less than two thirds* that of the Madras army. There do not seem to be any such differences in the climatorial diseases, or in the character of the military stations, of the three presidencies, as are by any means sufficient to account for this discrepancy; and if there were, we should expect them to manifest themselves alike in the Native and in the European army. That the reverse is the case, must be admitted to be a cogent argument, if not a complete proof, in favour of the insufficiency of any such account of the discrepancy. The following are the causes assigned by Colonel Sykes. The *Bengal* European army has no supply of porter, but is furnished with rum, a spirit not so wholesome as arrack. On the other hand, the *Madras* army consumes a large quantity of porter, and drinks comparatively little spirit, what it does consume being arrack. The *Bombay* troops have only recently commenced the consumption of porter, and the spirit they drink is understood to be more wholesome than rum, and less so than arrack. "These results," says Colonel Sykes, "are certainly not conclusive; but I cannot help associating the increased consumption of malt liquor by the Madras Europeans with their comparative healthiness; and three gradations of the mortality in the Bengal and Bombay European troops as partly influenced by the quantity (no doubt much more by the quality) of the spirits they respectively consume." Now, on the other hand, the excess of mortality in the Native army of Madras above that of the Bengal and Bombay troops, is equally attributable to a difference in the habits of the individuals composing it.

> "Of the *Bombay* army," says Colonel Sykes, "six eighths consist of Hindoos, and considerably more than half of the whole army are Hindostanees. These men never taste meat, fish or spirituous liquors, but live, I may from personal observation venture to say, almost exclusively upon unleavened cakes of wheat or other cerealia, baked upon an iron dish, and eaten as soon as cooked. The great majority of the *Bengal* army consists of a similar class of men. The *Madras* army, in its constituents, is the reverse of the other two. In the cavalry there are from 6 to 7 Moosulmans to 1 Hindoo, and in the infantry there is 1 Moosulman to every 1¼ or 1¾ Hindoos; but amongst the latter there is a considerable number of low castes, without prejudices about food, and unrestrained by the prejudices of caste; therefore the majority of the Native troops of the Madras army can eat and drink like Europeans."

Thus then we see, that whereas in the Madras army, in which the European and Native habits most closely assimilate, the mortality of the former is *less than double* (about 38 to 21) that of the latter; the mortality of the Bengal Europeans is *nearly six times* (about 74 to 18) that of the Bombay Natives, the difference bearing such a relation to the greater abstemiousness of the Native soldiery, and the larger consumption of spirits by the Europeans, that it is scarcely possible to avoid the inference that they must be connected in the relation of effect and cause.

Having learned that the 84th Regiment of H. M. Foot has for some time enjoyed the reputation of being one of the most temperate and best conducted regiments in the European portion of the Indian army, we have consulted the Army Medical Returns, for the purpose of ascertaining whether its rate of mortality has differed in any marked degree from the average given above; more especially since it has been quartered at Secunderabad, which (as we have seen) lies under the bad repute of being one of the most unhealthy stations in the Madras presidency. In the year 1846-7, the average strength of H. M. troops in the Madras presidency was 5963, and the number of deaths was 251, or 4·21 per cent., which is rather above the average mortality in this presidency, as calculated by Colonel Sykes. During the first eight months of this period, the 84th Regiment was quartered at Fort St. George, Madras, which is considered a healthy station; it then performed a march of between four and five hundred miles, to Secunderabad, in an unusually wet season, the roads (such as they were) being in some parts knee-deep in water, and it took up its quarters at Secunderabad about two months previously to the date of the return (April 1, 1847). The Medical Return of the regiment for this year presents us with the almost unprecedentedly low number of 13 deaths in an average strength of 1072 men; the mortality being thus at the rate of only 1·21 per cent. Now during the same period, the 63d Regiment, which was quartered at Secunderabad up to Feb. 1, 1847 (or nine months out of the twelve), lost 73 men, which was at the rate of 7·88 per cent. for the entire year; whilst the mortality for *all the other* stations in the Madras command was only 3·02 per cent. for the same year. Hence we see that the mortality of the 84th Regiment for the year 1846-7, was only *two fifths* of that of the average of the healthier stations in the Madras presidency, which average its own very low rate contributed to reduce.

During the year 1847-8, the total mortality in the Madras presidency was 227 to 6040 of average strength, or 3·76 per cent.; but this reduction from the preceding year was not due to any considerable difference in the rate of mortality at the other stations, being almost entirely consequent upon the diminution in the number of deaths at Secunderabad. For the 84th Regiment, which remained at that station during the whole year, lost in that time no more than 39 men out of an average strength of 1139, so that its per centage mortality was only 3·42; which was below the general average of the presidency, *less than half* the average rate at Secunderabad for fifteen years previously. It seems impossible to attribute these remarkable results to anything but the abstinent habits of the soldiers of this regiment, a large proportion of them being complete tee-totallers, and those who were not so being *very* moderate in their consumption of alcoholic liquors. The influence of the system upon their moral health has been no less favorable than upon their physical. During the year 1846-7, as we learn from the Surgeon's Report, there was but a single court-martial in the entire regiment. On the march to Secunderabad, which occupied forty-seven days, there was not a single prisoner for drunkenness, the officers were surprised to find that the men marched far better, and with fewer stragglers, than they had ever before known; and it was noticed by every one that the men were unusually cheerful and contented. What a heavy responsibility have our military authorities taken upon themselves, in ordering the discontinuance of Temperance Societies in the army? We have been informed by a regimental surgeon recently arrived from India, that within *one month* after the promulgation of this order, he had *forty* cases of delirium tremens under his care. The reason assigned for this measure we understand to be, that nothing like an *imperium in imperio* can be permitted in the army; its systematic organization for military purposes being (it is considered) interfered with by any other, however good its design, and however beneficial its effects. We cannot imagine that the Commander-in-chief, when he issued such an order, can have given his attention to the subject; or he would have seen, from such returns as those we have adduced, how greatly temperance is to the advantage of military subordination, as well as to the health and general welfare of the troops. The difficulty would be got over with the greatest facility, if the officers of the regiment would become the officers of its Temperance Society,—as we understand to have been the case in the 84th. There would then be no ground whatever for the apprehension that the organization of the Temperance Society could in any way interfere with that of the regiment; and the example of the officers could not but have the most beneficial effect upon the men, as was abundantly proved in the case just referred to.

But even if this be not thought practicable, we would strongly urge (with Dr. Mackinnon) that the use of *beer* should be substituted as much as possible for that of *spirits*. Everything is in favour of such a measure. It is well known that since the introduction of bitter ale as the ordinary beverage at the officers' mess-table, in place of wine and spirits, the longevity of the officers in the Indian service has so greatly increased, that promotion is no longer expected to be more rapid in that part of the army than in any other. The thing has been already done for the soldiery, to a great extent, in the Madras army, and more partially in the Bombay; why should it not, we ask, in the Bengal, since there can be no greater practical difficulty in that presidency, than has been already overcome in the others? A fact mentioned by Dr. Mackinnon tells strongly in favour of the advantage which might be expected from such a change, as well as in favour of exercise in the open air, as conducive to health. The indigo-planters at Tirhoot, he tells us, lead active lives, enjoy the comforts of good country houses, and generous wholesome diet; but, on the other hand, they are subject to much exposure; and the district cannot be regarded as very favorable to health, since, although comparatively cool, well clad with vegetation, and free from jungle, there are many lagoons or old beds of rivers, and extensive rice jheels, full of water in the rains, but drying up more or less completely by evaporation. "For natives," says Dr. Mackinnon, "I do not believe there are many parts of India more unhealthy." But the appearance of the indigo-planters is that of rude, robust health, very different from that of the civil servants residing at the station in the same district; many of them are generous livers as to the luxuries of the table, but as drink, beer is their favorite beverage, the slightest excess in spirits being always found prejudicial, and a free indulgence fatal after a time. The European male population, during the ten years that Dr. Mackinnon resided among them, amounted to an average of 130; and during this period no more than nineteen deaths occurred among them, which is at the rate of no more than 1·46 per cent. per annum; and several of these deaths were brought about by diseases, which might be probably attributed to habitual excess in diet, and which would be less likely to occur if even the moderate stimulus of beer, with that of high-seasoned cookery, were dispensed with.

It is not to be expected that the habit of water-drinking should become more prevalent among our Indian army, unless *good* water be provided. We gather from various passages in Dr. Mackinnon's work, that very little attention is usually paid to this point. It is sometimes raised from wells, and kept in large earthen jars for use; in other instances it is obtained from tanks, in which rain-water is collected. In both cases, however, it almost invariably contains a large impregnation of vegetable and animal matter; so that it very speedily becomes fetid. A very slight degree of trouble (as pointed out by Dr. Mackinnon) is sufficient to correct this evil at an almost nominal expense; the remedy being simply to keep the reservoirs clean, and to boil the water, and filter it through charcoal. Of the pernicious effects of the habitual use of foul water, there cannot be the least doubt, either theoretically or practically; for whilst theory would show that the continual introduction of putrescent matter into the system, in however small a quantity, must predispose it to be acted on by other morbific causes, even if it do not itself become the exciting cause of disease, experience demonstrates that epidemics most prevail where the water-supply is the worst. And a deficiency of good water will of course have the further effect of inducing a qualifying admixture of spirits, or the substitution of beer as the habitual beverage.—We would recommend this point to the earnest consideration of our Indian authorities, both civil and military; that its importance is no less urgent in our own country, will be fully demonstrated when we come to analyse the circumstances attendant upon the recent visitation of cholera.

We have said enough, we think, to show that among the causes of disease which tend to keep up a high rate of mortality among the European residents in tropical climates, the greater number are readily preventible, either by the direct remedial measures which the civil and military authorities have it in their power to apply, or by the individual self-regulation which they have it greatly in their power to encourage; and we would urge upon them, therefore, in the strongest manner, that wherever the returns show an unusually high rate, not imputable to the transient influence of an epidemic, they inquire into its causes, and endeavour to remedy them, instead of quietly setting it aside as an inevitable result. We have seen what has been the efficacy of such remedies at Hong Kong and at Bellary; and we trust soon to have an equally favorable result at Secundrabad. Can nothing be done for Barackpore, to remedy the fearful mortality to which every regiment stationed there seems liable? Look at the sad details of this station.

The 3d Native Infantry stationed for three years at Mynpoorie, lost 26 men out of an average numerical strength of 753; during three years at Barackpore, out of an average numerical strength of 865, it lost 283 men.

The 57th Regiment, when stationed at Benares, lost, in three years, 35 men, out of an average strength of 749; during three years at Barrackpore, out of an average strength of 892, it lost 240 men.

The 58th Native Infantry stationed at Jumaulpore, lost, in three years, 24 men; during the next three years at Barackpore, it lost 208 men.

We have not the slightest doubt that this fearful rate of mortality is in great part dependent upon removable causes; how heavy a responsibility rests, therefore, upon those who have not merely every facility for investigating them, but the absolute power of removing them when discovered. No considerations of expense ought to prevent the recourse to the most efficacious means for the prevention of disease that it may be possible to devise; since, to say nothing of other considerations, there can be no doubt that, whether the direct pecuniary economy of sanitary reform will prove as great among a civil population as its more sanguine advocates maintain, every sixpence judiciously laid out in improving the accommodation, drainage, water supply, &c., of such of our troops as are posted in tropical stations, will be repaid over and over again; in the diminution of all the expenses consequent upon the continual replacement of such individuals as die or are invalided, upon the loss of effective force occasioned by the constant presence of a large amount of sickness, and upon the frequent removals from station to station—which last measure is at present required to diminish the destructive effects of the most unhealthy stations upon the troops stationed there, or at any rate to distribute them over a large number, and thus to equalize them, instead of letting them fall for any length of time upon one corps. How much has been done in this respect in the navy, is known to every one. The current statement that three ships may now be kept afloat with the number of men that were formerly required for two, is not, we believe, in the least exaggerated. It was in a great degree through the sagacity of Sir Gilbert Blane that those improvements were devised, and through his perseverance that they were effected, which turned a ship of war, from the floating hospital which it too frequently was, into the healthful residence which it may now, under judicious management, be considered. Much has been done in the army in the same direction, chiefly owing to the corresponding sagacity and perseverance of Dr. Robert Jackson; but much still remains to be done; and we are certain, that if the military authorities would order an investigation by competent inquirers into the condition of every station reputed to be unhealthy, and would seriously set themselves to think, not how *little* they *need* do, but how *much* they *can* do, to remove the causes of disease which will then be disclosed to them, they will soon be rewarded by such a diminution in the amount of sickness and mortality, as shall most amply demonstrate the capacity of the European soldier for health and longevity in any stations but such as are located in the midst of pernicious exhalations, whose influence no sagacity or prudence can avert. It would seem to be only of late years, however, that the propriety of avoiding even these as much as possible, has been felt by our military authorities. There are many instances in the West India Islands, and we doubt not in the East Indies also, in which barracks have been erected close to swamps, as if by preference; other situations of at least equal eligibility in a military point of view, and far preferable in all sanitary conditions, having been passed by. Since the adoption of the measure proposed by Dr. R. Jackson, of removing the troops stationed in the West Indies to cantonments on the mountain ranges, the diminution in the rate of sickness and mortality has been such as to justify the assertion, that if this measure had been carreid into effect at the time it was first urged by him, the lives of from 8000 to 12,000 men would have been saved,—a sufficient lesson, one would think, to our military authorities, not to *delay* the introduction of improvements which experienced medical officers concur in urgently recommending.

Having thus made such use of the works before us, as suited our immediate purpose,—that of directing the attention of our readers to some of the most important points of tropical hygiène, and of doing away with the idea that a residence in a tropical country is necessarily unfavorable to the preservation of health and to the duration of life,—it will be but fair towards their respective authors that we should say somewhat of the works themselves.—That of Dr. Daniell chiefly consists of an amplification of a series of papers contributed by him some years ago to the 'Medical Gazette,' on the topographical characters of the Bights of Benin and Biafra, and on the diseases peculiar to the aboriginal tribes. The author abstains from entering into any details connected with the modes of life, or customs of the native tribes, further than is requisite to develope those principles which tend towards the elucidation of the origin, and native system of treatment, of those diseases to which they are subject. And we gather from various hints that this is but the introduction or prodromus to a larger work, in which all the subjects that peculiarly fall under the consideration of a medical officer on the African coast will be more fully treated. We trust that such may be the case; since we feel assured that Dr. Daniell's long residence in this quarter of the globe, the large experience he has had of the different systems of treatment of its peculiar diseases, and the numerous opportunities that have presented themselves to him of studying the relations between endemic and non-contagious, and epidemic and contagious diseases, will give great value to the medical portion of such a work, executed by a man of the author's independence and sagacity; whilst the familiar intercourse which he has cultivated with the various native tribes in whose neighbourhood he has been stationed, enables him to add largely to the very limited amount of ethnographical information which we at present possess respecting them. We shall select a few passages, which will indicate the variety of points to which Dr. Daniell has directed his attention; and our first relates to a subject of much interest, namely, the general bearing of inquiries into the manners and customs of savage nations upon the question of their original descent:

> "Intelligent travellers have distinctly pointed out among barbarous nations, in different portions of the globe, faint traces of a descent from progenital sources, the elevated moral and physical characters of which are widely at variance with their modern condition and prospects. This retrogression from a superior intellectual and social position into the depths of profound barbarism has been referred to manifold causes. Apparently the most prominent are those gradual changes induced by the intervention of time, the dispersion and extinction of their primitive stock as a parent stem, and the detachment and consequent isolation of the successive offshoots from it, owing to their nomadic tendencies, and other circumstances, which contribute to still further their separation. The customs and modes of life also (from the diffusion and probable blending of these branches with other communities less civilized) have imperceptibly led to the deviation from their original characteristics; for, in proportion to the repeated migrations and fixed settlements in countries widely apart, these alterations have proceeded to such an extent, that at length, with the exception of a few occasional traces, a permanent obliteration of the whole has been accomplished.
>
> "Historical fragments of past ages will furnish us with instructive proofs of the rise and decadence of numerous empires, whose intimacy with the arts and sciences were such as denoted no limited proficiency in the cultivation of them, and from the scattered remnants of which we may recognise how far the tide of civilization had advanced. The records of their existence will be found either in the pages of some contemporary writer, or, as above, in the peculiarities of those degenerate tribes who have descended from them. The retention and warm attachment to such modified customs has been well exemplified in many of the national traits that distinguish the natives of Western Africa; their exploration, therefore, may not unfrequently bring to light some of those vestiges of science which, although partially concealed under the garb of savage life, still afford abundant indications of an origin from an intelligent and more civilized race of people." (pp. 26-7.)

This serves as the preface to an account of the rite of circumcision, as practised on the African female; of which we shall give our author's account, in a somewhat abridged form:

> "What is usually implied by the expression of the term circumcision, in reference to women, is merely the excision of the clitoris, and other organic structures connected with it. The excisive process is not restricted to one particular part, but is more or less varied in conformity with the usages of the different countries in which it is promoted. Under these modifications, it may be classed under four heads, viz.:
>
> "1. Simple excision of the clitoris.

"2. Excision of the nymphæ.

"3. Excision of both nymphæ and clitoris.

"4. Excision of a portion of the labia pudendi, with either or all of the preceding structures.

"The circumcision of females is the ostensible remnant of some of those mysterious orgies which derive their origin from the remote periods of antiquity. Its history, therefore, is necessarily involved in deep obscurity; for, as all the information to be gleaned on the subject is from its bare allusion in a few of the treatises of the early historians, it is of course but scanty. That it was secretly inculcated as one of those gloomy rites which the female proselyte had to undergo, as a preliminary measure, prior to her initiation into those dread mythological creeds, which in Egypt and the adjoining countries were swathed in the folds of an allegorical and almost impenetrable mysticism, is the most likely inference. Eventually the progressive decay of these religious institutions gradually led to its promulgation and practice among the masses of the people, for the priests who, independent of their scientific attainments, were also well versed in medicine, might have advocated its use, both in a moral and hygienic point of view, as conducive to the welfare of the female population. . . . . .

"The first, and least objectionable, of these operations, is the one almost universally selected by these nations where such curious customs are permitted. It is fortunately not accompanied by any dangerous symptoms, a moderate febrile irritation, with painful tenderness and profuse suppuration, being the common termination. Whenever a lack of skill or manual dexterity prevails on the part of the operator, it assumes a more serious aspect, violent inflammation and sloughing of the circumjacent textures frequently supervening. This process is mostly carried into effect before puberty, but the age of the person is no obstacle to its completion, should such be thought necessary. In Eboe, Old Cellebar, and other parts of Western Africa, it occurs between the years of four and nine,—much, however, will depend in these cases on the locality, and the purpose for which it is intended. When in Callebar river, I had an opportunity of witnessing the mode of operation undertaken there, as elsewhere, by aged females. The girl having been placed on the knees of a woman, with the legs apart, the clitoris was diligently sought out (for in this, as in other subjects of tender age, from imperfect development, it was sometimes difficult of detection), and upon discovery was seized, forceps-like, by two pieces of bamboo, or palm sticks, gently drawn forth, and severed by means of a sharp razor. The hemorrhage was rather copious, but it was suffered to exhaust itself. Afterwards the parts were alternately bathed with warm and cold water, and the girl placed in the recumbent position. The surface of the body was then dotted over by some fetish preparation to avert the molestations of any malign influence, and in two or three days the little invalid was restored to her usual occupations. The clitoris here is termed Yientra, and its continuance in females approaching maturity is not unfrequently deemed a cause of reproach. . . . . .

"The second division, or removal of the nymphæ alone, is rarely attempted on the same grounds as the previous operation: it is resorted to more as a surgical measure in those morbid states where the structure is the seat of hypertrophy or fungoid enlargement, and to which negro females are liable, either from excessive indulgence in venery, or from constitutional predisposition. . . . . .

"The excision of these organs in conjunction with the clitoris, though rather less common, is maintained in many of the countries where similar ordinances are instituted and upheld. In general, it is effected at the desire of the woman herself, either in complaisance to the hereditary customs of the family to which she belongs, or to the arbitrary caprices of her superiors, and as a means of ingratiation into the favour of her liege master, who may allude to its consummation as a proof of her devotion to his wishes; not that this latter event is dependent on her option, for in the African code of domestic regulations, it is freely understood that the hints of a husband are tantamount to law." (pp. 27-32.)

The cruel and painful process which constitutes the fourth division, is chiefly adopted in the case of young females who are destined for the slave-market, in order that they may not suffer the general physical deterioration which is an ordinary result of the promiscuous sexual intercourse that is commonly carried on among all classes of slave subjects. The operation, which is the same with that described by Burckhardt as performed upon the Nubian slave-girls, is said by Dr. Daniell to consist of two distinct stages, which are performed in many countries at different periods; he does not, however, give any more detailed account of the operation itself or of its effects.—Excision of the clitoris, however, is not the only treatment to which this organ is subjected; among some of the tribes of the Benin river, it is artificially elongated by means of small weights appended to it, and gradually increased in size until it has been lengthened several inches. This result is considered ornamental; but it is not free from inconvenience, for instances have come under Dr. Daniell's notice, in which ulceration of the organ had gone on to such an extent as to require its immediate removal. The following is a remarkable method of punishing licentiousness, which shows how much greater value is attached to *physical* than to *mental* chastity in these as in more civilized communities:

> "In some of the countries of Western Africa, another and more inhuman barbarity is perpetrated on girls of high birth, who have been guilty of prostitution, and is often succeeded either by a partial agglutination of the vaginal membranes, or a permanent obliteration of the canal. It consists in the introduction into the vagina of the unripe pods of the *capsicum frutescens*, or bird pepper, beaten into a soft mass, so that, from its acrid principle, a greater amount of suffering may be inflicted, in order to deter the fair debauchee from committing any further excesses. The pain from the active inflammation thus induced is of the most severe character. I was informed by one of the principal inhabitants of the comparatively civilized town of Clarence, Fernando Po, that this course of punishment is now and then had recourse to, to check any similar irregularities on the part of the female." (pp. 35-6.)

The commencement of puberty is stated by Dr. Daniell as usually manifesting itself among these tribes about the age of eleven or twelve years, and sometimes much earlier. It is interesting to trace among them observances of the same kind, in regard to the catamenial period, as those which are directed in the Levitical law:

> "Women, during the continuance of the catamenia, are deemed unclean, and are not permitted to touch or go near any object in use. Most of them, when in this state, retire from public life, and are usually immured in a solitary apartment, until the cessation of the discharge, and the subsequent purification, allows of their liberation; all sexual intercourse in the interim being firmly prohibited. In the interior it is a well-known fashion for the females to paint themselves in glaring colours, in order to denote the existence of this periodical secretion, and at the same time to warn strangers from being in any degree contaminated by their propinquity." (pp. 98-9.)

The large number of Semitic customs traceable among these Negro nations of Western Africa adds strength to the opinion, now rapidly gaining ground, as to their common origin with the Syro-Arabian races (of which the Jewish nation constitutes one subdivision); the researches of Dr. Pritchard having decidedly tended to the conclusion that, in physical characters, the ancient Egyptian people formed the connecting link between the Semitic and the proper African nations; whilst the philological investigations of Bunsen and his coadjutors appear to have established the fact, that the Egyptian race must be regarded as an offset from the Western Asiatic stock, detached before the languages of the latter had attained any high degree of development. These facts also support the idea now gaining ground among independent Biblical critics, that the rite of circumcision, and many other observances enjoined in the Levitical law, were not new, but were previously current amongst many surrounding nations,—the Jewish legislator having apparently selected and incorporated into a system all that was most valuable in their practices.—We learn from Dr. Daniell, that parturition in the Negro female is by no means invariably the safe and easy process that it has been generally represented; many instances having come to his knowledge, among different tribes, in which the parturient female has perished for want of a little timely assistance in complex and preternatural labours.—Some strange notions exist among the Eboes with regard to plural births.

"The females are not so prolific as those of the kingdoms of Soudan, and rarely give birth to more than two or three children, if so many. Should, however, any woman at her accouchement be unfortunately delivered of twins, both the mother and her offspring are condemned to immediate destruction, inasmuch as the affair is viewed in the light of a public degradation, the Jujumen asserting that, under such circumstances, it places the woman upon a disgraceful equality with the brute creation. The wife, provided she is a favourite, not unfrequently escapes with life, but the children are never suffered to exist." (pp. 97-8.)

Among the inhabitants of Old Callebar, the same prejudice seems to exist; but the involuntary offence is not punished with equal severity:

"Should any female by mischance bring forth twins at a birth, she is not put to death, as is the usual custom of the Elbo tribes, but forthwith banished to a small town, selected for this purpose, near the confines of the Etoo country in Cross River; public opinion deeming the accouchement of such an outrageous character as to affix an indelible disgrace, not only on the woman, but on her family and connexions." (p. 114.)

When speaking of the occasional occurrence of puerperal mania, Dr. Daniell mentions the following curious notion entertained by the same people:

"It is a rare event to meet with women so affected, since persons of all ranks, if suffering from any maniacal disorder, are seldom permitted to reside within the precincts of the larger towns, and are carefully avoided by their inhabitants, who entertain the curious idea that their saliva, if thrown upon others of sane mind, has the effect of rendering them similarly affected. Their treatment appears to be rather harsh and severe." (pp. 113-14.)

In regard to lactation, we find that some unusual observances are practised by most of the natives of Western Africa:

"One of those prominent traits which may be considered almost national or hereditary among the negro females of Warrée, as elsewhere in Western Africa, consists in the lengthened periods they are allowed to suckle their offspring, which, in the populations of the Delta, are often protracted until they have attained the age of two or more years. The reasons they adduce in explanation of their adherence to this custom are, that the infant, under this simple yet invigorating regimen, is less subject to disease, and as it gradually acquires vigour and tonicity of frame, is better enabled to withstand those miasmal and other noxious exhalations that emanate from the swampy localities which they inhabit. Moreover, they remark, that should the ordinary food of adults be administered at a too tender age, and the stomach thereby overloaded with heavy ingesta, the opposite result would occur, and the mortality, great as it now is, would be increased threefold. By the Mahometan nations in northern and central Africa a similar custom is implicitly adopted; perhaps, more in conformity with the precepts of the Alkoran, which ordains that mothers shall suckle their children to that age of maturity which may be deemed requisite. From the period when the pregnancy of the female becomes apparent, she is restricted from any future cohabitation with her husband, which law is continued in force until she has finally weaned the child. This observance in some countries is more rigidly enforced in consequence of the prevalent impression, that should any intercourse take place between the parties, it would either tend to the immediate destruction of the infant or seriously affect its future existence. It is probable, that under these views, polygamy, which so extensively prevails in equatorial Africa, becomes to a certain extent necessary." (pp. 55-6.)

The medical treatment of some of those endemic diseases to which these people are especially liable, appears to be very sagacious and successful:

"European practitioners in any degree conversant with the medical customs of the negroes of intertropical Africa, cannot fail to be deeply impressed with the marked attention paid by the native doctors to the due action of the cutaneous tissues, and their encouragement of this as a means for relieving disease. The Mahomedan code of laws, whose sanitary injunctions are so well adapted for the advancement of the moral and physical condition of the barbarous pagan tribes in central Africa, strictly enjoins not only abluent but other hygienic measures for the promotion of cleanliness, and the proper discharge of the cutaneous functions. The inhabitants of most of the maritime localities in the Bights are fully acquainted with the importance of these views, and treat the remittent and other fevers to which they are subject by endeavouring to excite a long-continued and copious exudation of sweat from the cuticular pores, by the aid of heated sand-baths, ablutions of hot water, and rude attempts to imitate vapour-baths. In some countries the patient is placed close to a large fire for such purposes, whilst in others he is held over it, water being slowly dropped thereon, so that the steam, as it ascends, may act on the affected portion of the body. After a careful observation of the good effects of this remedial system, I was led to pay more particular study to the utility of its application, and at length to try a modified adaptation of it for the cure of those adynamic remittent fevers so destructive to European life. I have no hesitation in asserting, that not only myself, but many others, who have experienced its efficacy by the speedy restoration to health, can vouch for its superiority over the ordinary practice of venesection, saline purgatives, and large doses of calomel, &c." (pp. 119-20.)

In several other parts of his 'Sketches,' the author expresses himself as equally unfavorable to the depletory treatment of diseases, whose adynamic type may be too surely predicated from the conditions under which they have been developed; and as trusting much to diaphoretic action. We hope to see his views given to the world ere long, since we are sure that they will be important, not merely as regards the best method of combating these fearful pests, but also in their bearing upon the treatment of other diseases of less virulent character, to which the inhabitants of temperate climates are subject. We have long thought that the very inconstant operation of internal diaphoretics will in time be superseded by more certain and efficacious methods of external application, either of dry heated air, or of vapour; and we shall be glad to see how far the results of Dr. Daniell's practice bear out the justice of our somewhat speculative views.—The native practitioners seem far less able, however, to cope with two diseases, of which one, probably both, are of foreign introduction. Thus of the Warrée people, Dr. Daniell remarks :

> "Syphilis is perhaps the most frequent and fatal of those maladies to which the male inhabitants are liable, and predominates more among them than among the females. Many are cut off very early in life from want of the necessary remedial applications, and it is not uncommon to meet with cases which have continued during nearly two thirds of the patient's existence. The worst forms of syphilitic disease which have come under my notice have been the foul and malignant phagedenic ulcers that indiscriminately attack both sexes. Gonorrhœa virulenta, nodes, cutaneous eruptions, and, indeed, all the sequelæ of syphilis in multiform varieties, are extremely prevalent, and not unfrequently resist the most energetic and judicious treatment of the European surgeon." (pp. 43-4.)

And further on we find that,—

> "Variola occasionally occurs after long periods, when it assumes an epidemic character, invariably sweeping off two thirds of the inhabitants of those villages exposed to its pestilential visitations. Several years since, variola of a peculiar malignant type broke out in Soudan, and passed from thence into the neighbouring kingdoms of Haussa and Benin, and so fearful were the ravages committed in its progress, that the majority of the Warrée towns narrowly escaped depopulation. Among the native tribes that inhabit the maritime regions of equinoctial Africa, there is, perhaps, no class of diseases that creates more terror or dread than the prevalence of these variolous epidemics. As but comparatively few negroes escape with life, when once attacked by epidemic smallpox, this circumstance may satisfactorily explain why so few are pitted with its characteristic marks, and also account for the custom that prevails, in some countries, of swearing by this malady,—an oath which, from its dire import, is held inviolate. The other exanthemata but rarely, if ever, appear." (pp. 48-9.)

Now it seems to us to be a fact of no mean pathological importance, that whilst Europeans are so much more liable than the Negro races to suffer from the miasmatic poison of the African river-swamps, the Negroes (and we believe this is true also of other nations receiving the above diseases for the first time from European sources) should be so much more severely affected, than Europeans now usually are, by the poisons of syphilis and variola.—Of the native surgery, we have one or two curious notices, in addition to that we have already cited respecting female circumcision. The following is a specimen of the surgical practice among the natives of Fernando Po:

> "A rude and singular process of venesection is had recourse to in diseases of more serious import: it is performed by making a vertical incision on both sides of the vein, which is then raised on the point of a spear and divided transversely. In amputation of the hands, a cruel penal sentence summarily inflicted on all women guilty of conjugal infidelity, the bleeding is restrained by the application of a heated piece of iron, or dipping the stumps in boiling oil, the resulting eschar, when separating, not being followed by any ill effects or further hemorrhage. Females thus mutilated may be seen daily wandering about the streets of Clarence." (p. 139.)

In a sort of rude cupping, they seem to possess considerable dexterity, the incisions being made singly by a sharp razor or knife, and a small calabash being then applied, the air from which is exhausted by burning paper or cotton *secundum artem.*—A curious practice is in vogue in the inland portions of the Ebo country, whence a supply of slaves is drawn. It consists in the dissection or corrosion of the cuticle (we should imagine that Dr. Daniell must mean the cutis) of the forehead from its subjacent textures; this operation, performed in infancy, leaves a large unpleasant cicatrix as the individual advances in years, which is considered as a popular mark of distinction.

Dr. Daniel enjoys, we have understood, a singular amount of court favour, being chief physician to no fewer than *eighteen* African kings, and never travelling in the interior but with a guard of honor. He may well speak, therefore, of the estimation in which the medical profession is held among the natives of Western Africa.

> "In most of the rivers of the Bights, the medical officer, if he were so inclined, could easily convert his ship into a lazarette, from the influx of patients that would voluntarily place themselves under his sanitary regulations. Natives of every rank express the greatest confidence in his skill, and the efficacy of those remedial measures exhibited for their benefit; and should such unfortunately fail of affording the desired relief, the case is considered by them as hopeless. Whenever, therefore, the surgeon of any vessel is known to be somewhat liberal in the distribution of his medicines, innumerable invalids flock on board, and, without hesitation, supplicate his attention to their real or imaginary complaints; and many urge their claims so cogently, that it requires no small amount of patience and firmness to withstand their importunity. Medical science in Soudan, and other inland countries, is also fully viewed in the same favorable light; and the white practitioner, if the assertions of travellers are to be credited, is considerately treated with kindness and hospitality." (pp. 61-2.)

All this, we need scarcely to say, tells strongly in favour of the system of medical missions, which we have on more than one occasion brought under the consideration of our readers. The following notice of regal style in Old Callebar, is not altogether unassuming, especially at its own conclusion:

> "The most remarkable architectural structures, however, that attract the attention of the stranger, are the massive wooden mansions of the king and chiefs. These edifices were originally built in Liverpool and Clarence, transhipped from thence in detached pieces, and reconstructed there under the superintendence of European carpenters. Their sides are formed of stout planks overlaying each other so as to facilitate the passing off the rain. The habitable rooms are on the upper story, and are well lighted either by glass windows or latticed apertures, which have in front of them an open corridor that surrounds the entire building. These apartments are elegantly fitted up with magnificent mirrors, chandeliers, sofas, &c., intermingled with pictures, vases, earthenware, and other expensive articles of *bijouterie*. They serve as an ordinary lounge for the white traders; but their cool and refreshing gloom, with their comfort, neatness, and freedom from the noisy disturbances of the shipping, peculiarly recommend them as temporary hospitals for the white valetudinarian." (pp. 109-10.)

The coolness with which our author speaks of the conversion of these royal residences into lounges for white traders and hospitals for white valetudinarians, somewhat reminds us of the quiet appropriation of the good Curé's house and provender at Zermatt, by Dr. Forbes and his hungry party. We do not see why the white traders should not build equally good houses for themselves, instead of sponging upon their aristocratic friends.

We shall in the last place notice one or two of the more important points in the medical topography of Western Africa, to which we have not already referred. In common with other medical practitioners, whose experience of African diseases qualify them to give an opinion as to the causes of the fatal result of the ill-fated Niger expedition of 1841, Dr. Daniell passes a severe criticism upon the manner in which it was planned, and upon the hygienic arrangements which were adopted in obedience to the *dicta* of mere theorists :

> " Now, as this expedition was avowedly conducted upon hygienic principles, it came, of course, under the criticisms of those medical practitioners resident in Africa, who from their intimate knowledge of the climate and diseases of these countries, might be deemed fully authorized to express their opinions upon these subjects. Accordingly, in the outset, the selection of the most unhealthy season for the commencement of their operations, with the inefficiency of the precautionary means adopted for the preservation of the health of their crews, rendered it an easy matter for them to predicate its unsuccessful issue. It was afterwards pointed out that in various instances the medical arrangements evidently betrayed but an imperfect acquaintance with the nature and effects of these endemic influences so fatally exemplified in the consequent sickness and mortality. The horror of malaria was carried out to such an excess, as to keep in full play Dr. Reid's 'ventilating and medicating apparatus,' with which each vessel was supplied, forgetting that when the men emerged from the purified compartments below, they were exposed upon deck to the moist and tainted atmosphere of the swamps. In order to obviate this inconvenience, it was stated in the general orders, that 'those who were obliged to be on deck on duty will be supplied when in unhealthy localities with respirators, and a fire is then to be kept all night in the cookhouse.' Such prophylactic measures are, however, of little or no utility in the rivers of the Bights, and can only be placed on a par with the somewhat sapient plan, recommended in a work on the African colonies, of erecting a number of limekilns on the verge of the Bullom swamps, in order to decompose those miasmal vapours that might emanate therefrom to the detriment of the opposite town of Sierra Leone." (pp. 76-7.)

In regard to the disputed question of the merits or demerits of Fernando Po, Dr. Daniell gives it as his decided opinion that this colony has been greatly maligned, chiefly in consequence of the meagre data and partial information from which general deductions have been drawn by individuals, whose interest it has been (from their connexion with other colonies on the main land) to speak in its dispraise. One most important advantage of this island would seem to be, in his estimation, that it affords a most advantageous opportunity for new comers to undergo that "seasoning," which seems to be as necessary to their future immunity from climatic fevers, as an attack of variola or scarlatina is to the European for a similar purpose.

> " It would appear to be almost an inevitable law in these regions of Western Africa, that no individual, under whatever circumstances he may have been brought up, or for whatever length of time he may have been stationed in other tropical countries fully as unhealthy, can claim any exemption from the attacks of the various local and other climatic fevers of this equatorial division. The endemic remittent, or, as they are often improperly denominated, the seasoning fevers of Fernando Po, are much milder in their invasion, less dangerous in their career, and are rarely, if ever, of that pestilent or insidious asthemic type, which, in the debilitated or broken up constitution of seamen and others, always forebodes the worst results. When judiciously treated in their earlier stages, the subsequent prostration of both mind and body is not so great, the disease becoming more tractable under the administration of the ordinary febrifuge medicines; and the medical officer, in general, will experience but little difficulty in bringing his patient safely through the ordeal of this long-dreaded and punitory process," (pp. 155-6.)

So that, according to Dr. Daniell, a visit to Fernando Po might be considered somewhat in the light of the inoculation of the vaccine disease,—a substitution of a milder disorder for a severe and dangerous malady. It remains to be seen, however, whether it will prove equally protective. In defending Fernando Po from the charge of insalubrity, which has been rested on the fact that several of the seamen of vessels which have occasionally touched at the island have been prostrated and cut off by fever or dysentery, within a brief period after their arrival at one of these anchorages, he maintains that the period of latency of the poison may be sometimes considerably prolonged; and that in most of such cases the disease was really engendered elsewhere. In support of this position, he adduces the following example:

> "Towards the close of the month of June, 1841, a large ship to which I was then attached, having a complement of forty white men, passed from the Old Callebar river to Fernando Po to procure the necessary supplies of fresh water and provisions prior to the homeward voyage. During the period of seven months, in which the crew were engaged in loading the vessel at the usual anchorage of the town, they suffered but slightly from the endemic diseases of the place. Some weeks, however, previous to their departure, in consequence of the temporary roof which protected the vessel having been removed, the sailors were exposed to the heavy rains, particularly for the few days they were occupied in navigating the vessel over the different bars of the river; all, however, were in the enjoyment of good health when they entered the port of Clarence. Forty-eight hours had barely elapsed from their arrival, when several of the men began to complain of the premonitory symptoms of fever, and before a week had passed over, the majority were prostrated by severe remittents, from which many were with difficulty recovered. It will be manifest that in these cases the exposure to the rains, previously to their arrival in Fernando Po, were the predisposing sources, while the transition from a humid and sultry atmosphere, to a climate with a temperature comparatively low, were the real exciting causes of the disease." (pp. 157.)

We should like further evidence, however, that this is the real explanation of the case and others resembling it since it appears to us that the assumption has been rather too hastily made by Dr. Daniell; we trust that he will fully discuss the question in his forthcoming treatise.—He thus concludes his remarks upon Fernando Po:

> "To Europeans who have been stationed for any length of time in the rivers or inland districts of the Delta of the Niger, a visit to this island would be attended with many advantages, especially to those who have been sufferers from that low nervous irritability or mental despondency; distressing sequelæ that not unfrequently supervene after the visitations of remittent and other febrile diseases. In agues, chronic dysentery, and other morbid affections of obstinate duration, the change of climate often produces the most decided benefit, and I can only conclude these observations by remarking, that had those individuals whose anxiety had hitherto been to depreciate the utility or decry the healthiness of this island, been resident for the same number of years with myself and others in the pestilent swamps of equatorial Africa, they would ere this have learned to appreciate the value of the boon so appropriately placed within the grasp of most African voyagers, and one which, above all other considerations, is prized by the convalescent, viz. the rescue from a premature death, and the restoration to the usual occupations of ordinary health." (p. 162.)

In conclusion we may remark of Dr. Daniell's, 'Sketches' that they contain matter which will interest readers of almost every class; our only complaint against the author being that, with such ample stores of material at his command, he has not allowed his readers to profit by them to a yet greater extent. We must not omit to notice the very handsome manner in which the volume is got up; the paper and typography being such as are rarely seen in this age of cheap literature.

As regards its externals, Dr. Mackinnon's work is in most striking contrast with Dr. Daniell's; still its typographical execution is by no means discreditable to the Indian press. The volume is divided into four chapters: the first on Public Health; the second on Climate and Medical Topography; the third on Hygiène (erroneously spelt throughout Hygeine); and the fourth on the Pathology and Treatment of Prevailing Diseases. This division of the subject involves much repetition, and might be considerably improved.—The first chapter contains a good deal of information on the subject of Native Public Health, which is not, as far as we are aware, to be met with elsewhere. A section is given on the Health of Prisons, from which we learn that a most fearful mortality prevails in some of these. The average of deaths in all the jails in the upper provinces for 1845 was very clearly *ten per cent.;* and when it is considered that nearly the whole jail population consists of natives, it is obvious that this is at least three or four times what it ought to be, if due attention was given to sanitary regulation. At Delhi, in 1845, the mortality reached the frightful proportion of 26·13 per cent. This is not very surprising, when we are made acquainted with the miserable condition of these jails in regard to ventilation; for, whilst at least 600 cubic feet of air should be the minimum allowance for each individual, even in a cold country, we are informed by Dr. Mackinnon, that not half that amount is available in any jail, whilst in some instances 70 cubic feet is the miserable average. In regard to dieting, however, we cannot agree with him that 28 ounces of solid food is too low an allowance for a prisoner in India, if that food be of good quality, *and the proportion of its azotized constituents be sufficiently large;* for if 32 or 33 oz. be adequate for a prisoner in this country, the difference is fully compensated by the difference of temperature, which greatly diminishes the demand for combustible material. We suspect, however, that *rice* forms by far too large a proportion of the allowance. It should be borne in mind that the minute proportion of azotized matter in this substance renders it totally inadequate as the staple article of diet, unless it be consumed in very large quantity (which is the usual practice of those Hindoos who chiefly live upon it), or be accompanied by a portion of animal flesh, or some other highly azotized substances.—The importance of this branch of public hygiène will not be thought small, when it is known that the average number of prisoners in the jails of British India is not less than *forty thousand.*

A considerable part of Dr. Mackinnon's treatise is occupied with Native Hygiène; a subject which has been but little touched upon by preceding writers on the diseases of India. Now that every contribution to our knowledge of the sources of endemic disease is of special interest, we shall direct our readers' attention to the following extract, which will indicate a relation between cause and effect which there is no possibility of misinterpreting:

> "The sites chosen by the people for their habitations, are often the worst they could fix upon—namely, the vicinity of stagnant water. There we have the decay of vegetable matter producing miasm, and the atmospheric influences are more

noxious from the greater abundance of moisture. A good many of the houses of the European residents in Tirhoot have been built in similar localities, on the sides of the fine horseshoe lakes, in the vicinity of the little Gunduck already alluded to. I have, from extensive observation, been fully satisfied that such localities do affect health injuriously, as has been seen by me more especially with reference to the servants employed by the European residents. The European himself, living in a good house, sleeping high from the ground, and surrounded with comforts, more usually escapes. At various spaces between the huts in native towns and villages, we find deep pits, from which the earth has been dug to form walls for the houses. These fill with water in the rains, which dries up by the slow progress of evaporation; and such places, as might be expected, teem with animal and vegetable life, some of it dependent on water for its existence, so that, after a certain stage of evaporation has passed, their death produces animal and vegetable combinations, the undoubted sources of fever and dysentery, and greatly aggravating the virulence of all epidemic visitations. We have next to notice the heaps of litter and filth left in the immediate vicinity of every native village,—in fact, surrounding the door of every hut. The roads around every hamlet, and the interspaces between the houses, abound with luxuriant vegetation, producing mischief in decay, and checking the free current of the atmosphere. All these causes not merely induce individual disease, but render epidemics more virulent, as well upon any one person attacked, as with reference to the numbers it will seize upon. The wells from which the inhabitants drink are often left full of rank weeds, and are also frequently impregnated with saline ingredients. The habitations of the people are often damp, on a level with the surrounding soaked ground, and the current of air through them very much obstructed. Lastly, the food of the people, as we might expect, and as we cannot hope greatly to remedy, but by raising them above their present condition, is what the occasion offers, not what prudence or judgment dictate." (p. 39.)

The following, after a local experience of ten years in Tirhoot, are stated by Dr. Mackinnon to be the manifest results of the foregoing agencies:

"In the hot weather, smallpox, cholera, and remittent fevers prevail; in the rains, the same affections, with less of the two former and more of the latter; at the breaking up of the rains, intermittents, congestive remittents, dysentery, and cholera are most rife, and from these causes a general effect upon the health of a population also arises, which it is difficult to appreciate but by principles of general reasoning. The measures necessary to be adopted are simple enough; and they could be made to ensure at least a partial removal of the causes of sickness which have been enumerated." (p. 39.)

Sanitary reform among the native population of India, however, will be attended with difficulties peculiar to itself; yet, on the other hand, it will be favored by the autocratic nature of the government, and by the confidence which the natives are quite ready to place in European sagacity and integrity, whenever that confidence is shown to be deserved. It acquires a new importance in European eyes, now that we look to India as the source of a fearful pestilence. whose future visitations may be even more speedy and fatal than the last, unless means be taken to prevent them. And whilst our government has now the duty forced upon it, of doing all that can be effected by legislatorial enactments to prevent the multiplication and propagation of the poison in our own country, it is no less called upon, not merely for the welfare of the British Isles, but for that of nearly the whole world, to use its utmost exertions to annihilate the *fons et origo* of the malady. And the more we learn of the sanitary condition of India, the more do we feel satisfied that a judicious system of public and individual hygiène (the latter being in a variety of ways closely related to the former) may not merely render a residence in India nearly as safe to the European as a residence in his own country, but will tend in every respect to elevate the character of the native population, and will limit the spread of the cholera-poison, if it cannot altogether eradicate its sources. By every consideration of humanity and policy, therefore, our Indian authorities are called upon to take this matter into its immediate and most careful consideration; and we trust that it will not, after the fashion of the home government, throw aside the services of the men best fitted to aid in the inquiry, both by their peculiar opportunities of observation, and by their general scientific attainments; but that it will take into its councils those medical officers who have already shown themselves most active and sagacious in collecting information as to the causes of prevalent diseases, and that it will in every way encourage, instead of repressing (as it has hitherto not unfrequently done) the zeal and intelligence of those who have busied themselves in this inquiry. Surely it should be recollected that the man who shows the world how a fatal disease may be *prevented,* is fully as worthy of consideration as he who discovers a *specific cure.* There is no want of credence in high quarters to the quacks who unhesitatingly promise the latter; shall less be given to the educated men, who (to the pecuniary disadvantage of their profession) labour to convince the world by the collection of irresistible evidence of the feasibility of the former?

ART. V.

1. *The Anatomy of the External Forms of Man; intended for the Use of Artists, Painters, and Sculptors.* By Doctor J. FAU. Edited, with Additions, by ROBERT KNOX, M.D., Lecturer on Anatomy, &c. 8vo, pp. 314.—With an Atlas of Twenty-eight Plates. 4to. (Vol. VII of the Library of Illustrated Standard Scientific Works.—*London*, 1849.)
2. *Ueber Marc' Antonio della Torre und Leonardo da Vinci, die Begründer der bildlichen Anatomie.* Von Dr. KARL F. H. MARX.—*Göttingen*, 1849. 4to, pp. 20.

On Marc' Antonio della Torre and Leonardo da Vinci, the Founders of Iconographical Anatomy. By Dr. K. F. H. MARX. (From the Fourth Volume of the Transactions of the Royal Society of Göttingen.)

THE two works before us, although widely different in their object, have something in common. Dr. Knox, as the editor of Fau's work, may be considered as the last in the series of that class of anatomists, which commenced with the age of Verrocchio, Della Torre, and Da Vinci. It is not, therefore, without some interest, or without being suggestive of thought, that the works are placed in juxtaposition.

The necessity of a knowledge of anatomy has been recognised at least so long back as the palmy age of art, science, and literature in the fifteenth century, when some of the greatest masters of modern art flourished. The right use of that knowledge has not always been understood, and its mistaken application has in fact retarded the progress of artistic excellence, by deflecting the mind and taste of the artist from external to mere internal or anatomical forms. It is to correct this error that Dr. Fau published his work, and Dr. Knox edited it.

Dr. Knox, already well known as an anatomical teacher, has evidently a taste for the artistic and the beautiful; and to such a man nothing can be more hideous and repugnant than the dissected human carcase. Independently of the fact, that death and decay have already effaced "the lines where beauty lingers," the exposure of the mechanism of the human body offends our instincts as well as our sense of the beautiful. Use and habit diminish the painfulness of these feelings, and, in those with little sense of the beautiful, may abolish them; but the man who continues to cultivate that sense must agree with Dr. Knox in his opinion, that the external, not the internal—the living anatomy of the human figure, and not the dead—is that which the artist, whether painter or sculptor, must study. We will let Dr. Knox speak for himself, not agreeing, however, altogether with him:

> "The longer I taught anatomy, the more I became convinced that the true signification of external forms was unknown to anatomists and physiologists; and in the discovery of this is mysteriously wrapped up the whole theory of Art,—the knowledge of the Perfect, the Beautiful. I was quite aware that no true theory of the beautiful had ever been submitted to mankind; and that, as a consequence, the discovery of 'Nature in Art,' as manifested to us in the antique marbles, was still to be made. This was in itself sufficient to lead me to a profound study of a mystery, seemingly connected with the very essence of truth in Art and of truth in Science; for the discovery of the Perfect, that is, the Beautiful, required also to be made, or at the least attempt, before a theory or hypothesis could be offered as to the nature of man; before any researches into the history of the origin of the race, of the unity of organic structures, of diversity of form in time and in space, merited even a title to the term philosophic. Lastly, I knew that the exterior must ever, in some view or another, translate the interior. These were the circumstances which led me to consider the exterior with other views than as a mere anatomist, or perhaps I should rather say, as a surgeon or physician; it, was, in fact, a preparatory study to my researches into the history of Race. Of the human figure each takes a different view—the surgeon, the artist, the philosophic anatomist; one leads to a practical art,—the art of surgery one of physic; another to the fine arts, noble and elevated, or practical and conventional, as the case may be; the last to philosophy, which must ever be transcendental and abstract; the eternal truth, the unchangeably true, when discovered, is included in this view." (Editor's Preface, p. xi.)

The reader will readily gather Dr. Knox's opinions from the above extract, although somewhat cloudily and verbosely given, and mingled with assertions, to which many would be apt to refuse assent. In carrying out this leading principle of the anatomy of external forms and of their fundamental relation to the Beautiful, Dr. Fau first gives the artist-student a chapter, containing general considerations on man and on the modifications he undergoes through moral and physical influences, including the subjects of temperament and race. To the physiologist and anatomist this chapter will appear very meagre and superficial, but it is probably as deep as it need be for the lay-student, just commencing his study of anatomy. Dr. Fau then gives a description of the skeleton and of the various parts which compose it, of the principal articulations and of their mechanics, and of the contour and external surface of the skin, including a consideration of the causes of forms and proportions.

The second part of the work is entirely devoted to a consideration of external forms as they appear at different ages and in the two sexes, and as modified by movements of the various leading divisions of the body, namely, the head, neck, torso or trunk, and the four extremities. The anatomy of forms is illustrated by an ideal dissection of the centre figure of the group of the Laocoon.

In an interesting appendix, Dr. Knox analyses the artistic characteristics of the remains of Greek art possessed by the moderns, with the object of illustrating further the external anatomy of forms, and their relations to the Beautiful. For this purpose, he takes the sculptures in the British Museum and the casts in the Royal Academy, and points out the artistic merits of each. It is a good handbook for both collections. The second chapter is devoted to some remarks on the remains of *Coptic* sculpture in the British Museum. We give a short extract from this, to show how the ethnological studies of Dr. Knox have influenced his meditations on the external forms of man, and how suggestive the treasures of the National Museum may be.

> "It was whilst examining the artistic remains of this remarkable race, the Coptic, that I was struck with the close resemblance the features of the modern Jew bear to these Coptic busts. The resemblance amounted, in many cases, to an identity of features, leaving no doubt, in my mind, of the identity of origin of the two races. It was whilst attentively analysing the features of Amenoph, usually called the young Memnon, that accident placed close to me two young Israelites, who might easily have passed for the brother and sister of the Coptic prince. Astounding fact in the history of man! For nearly forty centuries has the world rolled through space since this inimitable bust was carved; raised on the banks of the Nile, the admiration of the then living generation; now gazed at under the smoky, murky skies of England by a race ignorant of its history, careless of its origin; whilst around it, in groups or singly, walks the Israelite, the descendant of the Copt, unaltered by clime or time, as unchangeable as the enduring rock from which the busts of his forefathers have been hewn." (p. 232.)

Dr. Knox follows up this peroration by a comparison of the features of the ancient Copt, comparing them with the modern Jew, both as seen in front and in profile. In going through the Egyptian sculptures with an ethnological eye, Dr. Knox takes occasion to set the antiquaries right; for example, a figure in this gallery (at the side), marked 3, iii, described as a high military officer bearing the shrine of Osiris, is pronounced by Dr. Knox to have been a woman and a negress, with a very slight dash of Coptic blood.

Having introduced Dr. Fau and his Editor to our readers, with such remarks as we feel ourselves authorized to make in a journal purely practical, we need only add that, although we think Dr. Knox will have to modify some of his views as given here and elsewhere, he is doing great and good service both to science and art. Not a few members of the medical profession are lovers and patrons of the fine arts; to them we can recommend this work as containing much, both to interest and instruct them. The atlas of plates is a useful addition to the text; and the artistic merits of the lithographs are manifest.

II. There is a volume of anatomical drawings in red chalk, in the Queen's Library at Windsor, of singular interest to the anatomist and the artist, the medical historian and the medical bibliographer. It is bound in morocco, and is entitled "Disegni di Leonardo da Vinci restaurati da

Pompeio Leoni." In 1796, Chamberlayne published two folio plates, engraved by Bartolozzi, copied from these drawings, which he entitled "Imitations of Original Designs by Leonardo da Vinci;" and he supposed that the volume was brought from Italy by the Earl of Arundel, for Charles I, and was one of three left to Pompeio Leoni by Francesco Melzi, the favourite and friend of Leonardo da Vinci, to whom the latter bequeathed the whole of his artistic effects. Cowper, however, anticipated Chamberlayne, as he published some figures of Da Vinci's, of the different motions of the human body, with portions of his annexed explanations. William Hunter had his attention drawn to this volume by Dalton, the librarian of George III, and he notices it in two introductory lectures, published in 1784; he was evidently struck with the beauty of the drawings, as he observes that he saw, and indeed with astonishment, that Leonardo had been a general and deep student, and was fully persuaded that he was the best anatomist of his time. Blumenbach's attention was drawn to the drawings by this notice, and, as he was a collector of anatomical plates, he wrote to a friend in London, requesting further information regarding them. The answer was, that the MSS. consisted of 235 large folio leaves, the drawings being variously disposed and many mounted on blue paper. The greater number were anatomical, exhibiting with singular accuracy and beauty the female organs of generation, the various positions of the fœtus in utero, the bones, muscles, blood-vessels, viscera, and extremities, together with a few views of the brain, ear, and eye. The description was written in Italian, from left to right, sometimes in straight lines, but not always. The volume was then at Kensington Palace. Not long afterwards, Blumenbach, being in London, took the opportunity of inspecting them himself, and found to his surprise that Leonardo da Vinci had directed his attention to facts which were thought altogether modern. For example, he divides the human teeth into four orders, distinguishing the two first molars (the bicuspides) from the others. He also, by an anatomical section of the male and female figures demonstrates the method of coitus natural to man. This drawing was published in 1803, in Germany, a few years after Blumenbach had published a notice of the MSS. in his 'Medicinisch. Bibliothek' (Band iii, p. 728), under the title, "Tabula Anatomica L. da Vinci e Bibliothecâ Aug. Magnæ Britanniæ Regis deprompta, venerem obversam e legibus naturæ hominibus solam convenire ostendens. Lunæburgi, 1803."

Professor Marx (to whose essay we are indebted for most of the above details), with his usual industry and acuteness, has traced the origin of these valuable drawings, and has rescued the name of one of the earliest and greatest anatomists of the fifteenth century from unmerited obscurity, by showing that Leonardo da Vinci was taught anatomy, and enabled to execute these drawings, by MARC' ANTONIO DELLA TORRE, Professor of Medicine at Pavia. Pavia belonged to Milan at this period (1482—1512), which was under the rule of Ludovico Sforza, surnamed Moro, who collected the most eminent men about him at Milan, where he established an academy of arts. Leonardo da Vinci had already been taught, by his master Andreas Verocchio, that an artist should acquire anatomical knowledge; and when he became the director of the Milan academy, the need to the student of such knowledge was still more strongly impressed upon his mind; hence he laboured to acquire a knowledge of anatomy, so that he might communicate it to his pupils; and it was to Marc' Antonio della Torre that he seems to have addressed himself. According to Chamberlayne, it was at Vaverola that he dissected with his own hand, and diligently made those spirited designs from nature which were afterwards formed into a collection by Melzi, and one volume of which we have specially noticed; but we learn from Professor Marx, that he was specially assisted in these dissections by Della Torre, and that the two friends combined their talents for the purpose of bringing out anatomical plates much superior to those current, for the express purpose of aiding the artist-student and advancing human anatomy, by substituting good plates for dissections, which at that period were often impracticable.

As much less is known of Marc' Antonio della Torre than of Leonardo da Vinci, we will extract the few leading particulars of his life and career, which Professor Marx's bibliographical researches have enabled him to supply. Although his name rarely occurs in works of history, he and Picus da Mirandola were the most learned and talented men of their age. Marc Antonio was descended from a princely Italian family, and was born at Verona about the year 1482. His father, Jeronimo, was a teacher of medicine at Padua, where he died in 1506. His personal appearance was striking. He was slender, had friendly manners, pleasing voice, intellectual countenance His effigies on the medal (a copy is in a collection at Berlin) which was struck to his memory by his brother Julius, Professor of Law at Padua, resembled that of Raphael when young. Nicholaus Archius celebrated his posthumous praises in verse, and observes of his personal appearance—

> "Non ita sub vitreo collucent foute lapilli,
> Nec vagus apparet nitido sub flumine piscis,
> Quam tua rara fides et veri conscia virtus
> Sese ostentabat vultuque impressa nitebat."

His education was classical, and he especially devoted himself to the study of the Greek literature which had just been introduced into Italy. Const. Lascaris published the first Greek grammar in 1476,—a few years before his birth,—and various Latin and Greek classical writers followed in quick succession. In 1478 Celsus was printed; in 1480 a Latin and Greek lexicon; in 1490 a Latin translation of Galen; in 1495 a Greek edition of Aristotle, and of Theophrastus's botanical works; in 1499 a Greek edition of Dioscorides appeared, and this was shortly followed by a Latin translation. Della Torre had thus an opportunity of acquiring a better knowledge of medicine and botany than could be obtained from the Arabian writers, which, previously to the revival of learning, were the principal sources of medical science. His intimate knowledge of Greek literature, combined with an enthusiastic pursuit of practical anatomy, led to an early advancement, and at an age "adhuc valde adolescens," he was appointed public professor of medicine at Padua by the Venetian Senate; whence in a short time he departed to occupy the professor's chair at Pavia. It was at the latter city that he came into closer connexion with Leonardo da Vinci.

His diligent pursuit of anatomy enabled him to detect several errors in 'Mundini de Anatome,' a work which was the universal text-book of anatomy, being, according to Albinus, ordained by law to be used as such in all the Italian universities; and which was religiously so used for three hundred years. Mundini's anatomy was derived from Arabian sources, but Della Torre recognised the greater accuracy of Galen, and obtained permission to use his works as a text-book instead of those of Mundini. His enthusiastic pursuit of anatomical studies is well illustrated by a little anecdote which Professor Marx has disinterred. Gabril de Zerbis, a physician and professor at Padua, was sawn in pieces on his journey home from Dalmatia, by Miethling, the son of Scander, Bashaw of Bosnia, whom he had treated for dysentery, and from whom he had received a considerable sum of money. He had previously published an anatomical work (derived from Arabian sources), which contained so many mistakes that Marc Antonio declared his painful death was only a well-merited punishment for his anatomical errors; his living body expiated his manglings of the subject.

It was not as an accurate anatomist only, that Marc Antonio Della Torre was distinguished. He was a diligent student of botany, and was eminent for his knowledge of the medicinal virtues of plants. "*Quis te melius succos cognovit et herbas?*" is the compliment paid to him by M. Archius, and he was so fortunate or successful as a practitioner, that he is represented by Fracastorious as restoring to life the apparently dead.

> "Aut quam sæpe animas positas jam sedibus orci,
> Ad sua Appollinea membra vocaris ope?"

As a teacher, he was distinguished for his regard for the morals and future success of his pupils, as well as for his anxiety to communicate knowledge. He insisted upon the necessity of a good general education, and examined his pupils from time to time to see if they had a natural genius or bent for the profession. If they had not, he advised them to abandon physic, and follow the plough or the drum. His career was short, for he died of a malignant fever in the 30th year of his age, not, however, young in his acts and attainments, but giving, according to the funeral notices of his friends, ample proof of the saying of the wise man, "wisdom is gray hairs to a man, and an unspotted life is old age," or, in the epigrammatic conceit of his friend and admirer Nicholaus Archius (Count d'Arco):

> "Ante annos scivisse nocet; nam præcoqua virtus
> Persuasit Morti ut crederet esse senem."

He was at first buried at Riva, but his body was subsequently removed by his brother to Verona, to join the remains of his father in the cathedral, where a handsome monument was raised to his memory. His early death was deeply regretted by his pupils and contemporaries.

His intimate friends refer to his writings, and describe them as being of such excellence that they will excite the admiration of every successive age; yet none remain. Professor Marx shows by various bibliographical notices, however, that he had published a volume on anatomy, in which he enriched the anatomy of Galen by the results of his own dissections, and set aside the wild notions of Mundini and Zerbis. His early death was probably the cause of the loss of his other writings, in consequence of their being left unfinished.

It is manifest, however, that the manuscript drawings of Leonardo da Vinci belong in so much to him that he supplied the dissections, and gave the requisite instructions and supervision to that eminent artist. The value of such drawings can only be estimated by comparing them with the rude and erroneous anatomical delineations published at the end of the fifteenth and the beginning of the sixteenth centuries. Magnus Hundt, a priest and schoolmaster at Magdeburgh, published, in 1501, his 'Antropologium,' containing woodcuts copied from Mundini, Gordoni, Zerbis, &c., which were only imaginary, and indicated their Arabian origin by the technical terms used; as *mirach* for abdomen, *siphac* instead of peritoneum, *zyrbus* for omentum, &c. It appears probable, however, that these drawing by Da Vinci exercised indirectly an important influence on anatomy and anatomical art. It is very likely that Vesalius, enthusiastic anatomist as he was, had access to them and studied them, for he was Professor at Padua in 1537, seventeen years only after the death of Leonardo da Vinci; and if this were the case, the drawings, if not faithfully copied, might have served as a basis for his own anatomical plates, published in 1542. This fact might be readily ascertained by comparing the manuscript in the Queen's Library with this the first edition of Vesalius's plates.

The researches of Professor Marx have invested these drawings with great additional interest, and it would be a task highly in accordance with the objects of the Sydenham Society, to have them examined, and their publication considered. The Council might derive some assistance from Dr. Knox, who refers to Chamberlayne's engravings of Da Vinci's drawings. Da Vinci was of so profoundly philosophical a genius, that a philosophical eye should examine his works. Besides, so remarkable a relic of the revival of medical science in Europe well deserves to be rescued from oblivion, and its safety secured by multiplying copies of it. At present an unforeseen accident might totally deprive the bibliographical student of the opportunity of examining it, and we cannot but think that Professor Marx has conferred a great benefit on anatomists and artists by directing attention to this precious manuscript. Dr. Knox appears to be quite ignorant of its existence, although he refers to the "imitations" of Chamberlayne more than once. The great number of articulated skeletons represented in action, he thinks are studies after the naturally articulated skeleton, with a view to the discovery of the truth, or actual extent of movement in each and every joint, and not, properly speaking, anatomical drawings at all. Again, Dr. Knox observes that as he meditated on the friezes representing the battles of the Centaurs and Lapithæ, it occurred to him what the object of Da Vinci probably was in making some of those sketches, a few of which were engraved by Chamberlayne; he perhaps saw or discovered during his dissections, that the violent movements of the body were regulated by the articulations. Hence his sketches of the articulated or rather natural skeleton in such varied attitudes. Dr. Knox will, we are sure, take an early opportunity of examining the original drawings in the Queen's Library, and we hope to learn the result of his investigations.

Art. VI.

A Practical Treatise on Inflammation of the Uterus and its Appendages, and on Ulceration and Induration of the Neck of the Uterus. By James Henry Bennet, M. D., &c. &c.—*London*, 1849. 8vo, pp. 582.

It must be confessed that, notwithstanding the rapid progress of pathological science, our knowledge of the diseases of the female generative organs has lagged sadly behind in the race of improvement, and even at the present moment is wrapped in a veil of generalities, which deludes us into the belief that we have obtained the information which it really conceals. When we speak of hysteria, leucorrhœa, dysmenorrhœa, menorrhagia, we use terms of most doubtful signification. We fancy that we express by them essential diseases, well understood; when, in reality, we are only naming the ambiguous symptoms of hidden disorders. The proteiform nature of the signs that characterise the assumed disease (if character it can be called), the difficulty of diagnosis, and the uncertainty of treatment, all give evidence that we are fixing our attention upon the effect and not upon the cause; that we are only combatting the casual and ever fluctuating symptoms of affections which are altogether unknown to us. Any attempt, therefore, to raise uterine pathology to its proper position, and to keep it on a level with the current improvements in medical science, must be hailed with delight, and should receive our warmest thanks. In the treatment of diseases, which are not in themselves promptly fatal, but which slowly undermine the constitution, the *laissez-faire* system may be easily indulged in; and hence it has too frequently happened that uterine diseases, in which there has seemed no pressing necessity for activity, have been left to the soothing influence of palliatives, or to the experiments of empirical practice. The Pharmacopœia is filled to overflowing with the medicines which the speculative physician has found useful in female complaints; their variety, and often the contradiction in their properties, proving the empiricism of his treatment.

Among the disorders of the female constitution, there is none so frequent, none so much misunderstood as Leucorrhœa. Its name implies nothing more than an effect of some pre-existing disease. The cause of that effect should be inquired into and understood, before we undertake its removal: yet the treatment formerly adopted almost exclusively consisted in remedies to check the discharge; every variety of astringent was used for this sole purpose; and whether administered by the mouth and taken into the circulation, or applied locally, the whole object was to arrest the fluor albus, and nothing more. Oak-bark, and alum, and tannin were equally popular with the physician and the leather-dressers. The patient was cured—of the discharge, but not of the troublesome symptoms that caused her so much distress; nay, occasionally they were increased by the suppression of a secretion, which relieved to a certain extent the local congestion that existed in the reproductive organs.

Some years ago, Sir Charles Clarke attempted to remedy the evil, by pointing out the differences that existed in the characters of discharges included in the common term, fluor albus. He insisted upon the necessity of a vaginal examination in all such cases,—a tolerable proof that this was not at least a popular opinion; and pointed out the different characters of those discharges, as they appeared upon the finger. The transparent and opaque mucous discharges,—the muco-purulent, the purulent, the sanguineous, the watery discharge,—each were severally described; and the diseases that produced them, so far as they could be ascertained by touch, pointed out. The publication of his work on 'Those Diseases of Females which are attended by Discharges,' at once commanded the attention of the profession; the subject was perfectly new to them; and the variety of diseases that he proved to be included under the common names, "whites," "fluor albus," "leucorrhœa," gave an increased interest to his work. It at once took its place as the text-book for female diseases; and from the time that the importance of a direct local examination of the source of the discharge was established, the profession made one step nearer the only true means of obtaining a real knowledge of these complaints. Sir Charles pointed out the course which they should take; but even his genius could not remove the impediments that opposed themselves to a further progress. Much was gained in proving the importance of a vaginal examination; but in times when such a mode of investigation was looked upon as a breach of decorum, it is obvious that the examination could neither be satisfactory nor complete. The finger was the only means permitted to be used, and the sense of touch was to determine every variety of disorder to which the vagina and neck of the womb were liable. It is not surprising, therefore, that we should find a large portion of the work (sixty-five pages) occupied with a description of "procidentia uteri," while "ulceration attacking the os and cervix uteri" is disposed of in a page and a half. In fact, not a syllable is said about non-malignant ulceration; Sir Charles only wished to correct an error about malignant ulcers:

> "It has been too much the custom (he observes*) with practitioners, to consider all the different kinds of ulceration taking place in these parts as terminations of the disease called scirrhous or carcinoma..........It has been the custom of the author, during a period of sixteen years, as a teacher, to describe two different kinds of ulceration of the uterus, *both of which may be considered as malignant*,—the one under the denomination of corroding ulceration of the uterus; the other under the name of carcinomatous ulcer."

His acute mind perceived, however, although it could not explain, the difficulty that the symptoms of procidentia presented to him.

Such was the state of our ignorance of this class of diseases, until within the last few years;—an ignorance which was not the result of a careless attention to them, or of want of acuteness on part of the obstetric physician, but which was inevitable so long as the mode of ascertaining their character was not adequate for the purpose. The neck of the womb became the seat of inflammation, ending in ulceration and the secretion of pus; the patient complained of dragging pains across the back, increased by the upright position and by motion, relieved when lying down and at rest. The complaint was called procidentia uteri, and the purulent discharge was referred to the vagina exposed to irritation in consequence of the pressure of the womb upon it. The treatment consisted in astringent injection, rest, and the use of the pessary; the last, however, was occasionally dispensed with, being found to do more harm than good. No information was obtained as to the true character of the disorder, because the sense of touch could not communicate a change of colour, and could scarcely recognise the very slight inequalities in the surface to which the finger was applied. The very scanty supply of sentient nerves, also, to the neck of the womb, prevented the acute pain that such an examination would otherwise produce. Thus were these diseases enveloped in mystery, until a new method of examination revealed the truth. The speculum is the revival of an instrument of great antiquity, then used for several purposes. In the practice of midwifery it was the dilator of the passages. In diseases of the womb it was also employed for the purpose of curing ulcers *by direct applications to the surface.* Dr. Bennet quotes a remarkable passage from Paulus Ægineta, which sufficiently proves this knowledge of the ancients:

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* Sir Charles Clarke on Diseases of Females, vol. ii. pp. 183-4.

> "The uterus is often ulcerated from difficult labour, extraction of the fœtus, or forced abortion or injury of the same, occasioned by acrid medicines, or by a defluxion, or from abscesses which have burst. If, therefore, the ulceration be within reach, it is detected by the *dioptra* (the speculum), but if deep-seated, by the discharges; for the fluid which is discharged varies in its qualities. When the ulcer is inflamed, the discharge is small, bloody, or feculent, with great pain; but when the ulcer is foul, the discharge is in greater quantity and ichorous, with less pain and other symptoms of inflammation; irritation is produced by relaxing medicines, and relief by the opposite class. When the ulcer is clean, the fluid is small in quantity, consistent, without smell, thick, white, with an agreeable sensation. When the ulcer is inflamed, we must use those things recommended for inflammations. When it is foul, the Egyptian ointment, without verdigris, answers admirably for the cure of ulceration."*

Thus the ancients were perfectly conversant with the facts that ulcers existed in the womb, that they gave rise to discharges of very various characters, and that they might be cured by local applications; for which purpose it was necessary to use their dioptra. This knowledge was afterwards totally lost sight of. Whether it happened that the violence which was sometimes used in employing the ill-contrived instruments that assumed the name of dioptra, led to their disuse, or that the dark ages which followed sunk it in obscurity, it is impossible to determine; but it is certain that, until very recently, the profession had not the least idea of the existence of the class of diseases requiring the use of the speculum for their detection. Even those, as the late Dr. Davis, who were bolder than their compeers in countenancing the speculum, did so, as being useful for the purpose of destroying malignant ulcerations by strong caustics.

It is to Recamier that we owe the revival of the use of the speculum, and the resuscitation by its means of the knowledge so long dormant. Recamier was followed by Ricord, Emery, Gendrin, Jobert, (de Lamballe) Negrier, and others; and the several hospitals of Paris afforded a wide field for clinical instruction in these diseases. In Parisian hospital practice, Dr. Bennet observes, the objections which exist in England to examination by touch or by the speculum, either are not met with, or are not admitted by those physicians and surgeons who pay special attention to uterine disease; consequently little more difficulty is experienced in appreciating by their means the symptom furnished by the uterine organs, than in resorting to any unusual means of investigation in diseases of other parts of the economy. Not only is there every facility for observation, but the classification of diseases in the Parisian hospitals simplifies an investigation into their characters. Uterine disease, as Dr. Bennet remarks, is not the same at St. Lazare, where five hundred female prostitutes, affected principally with primary syphilis are treated, as it is at the Hopital St. Louis, the receptacle for cutaneous syphilis and scrofula, or as at the general hospital, where non-syphilitic patients are received. Even in the latter, great differences exist; for example, the hospital of La Pitié, being near La Maternité, where several thousand women are delivered annually, receives many patients recently discharged from the others. Others, such as La Charité and the Hotel-Dieu, depend on the general population; whilst in the Salpêtriè, which contains several hundred incurable cancerous patients, the uterine field again changes. A pupil, therefore, having such opportunities, and under such teachers, must be dull indeed if his knowledge of the inflammatory affections of the womb did not greatly exceed that acquired through the indirect and uncertain methods hitherto adopted in these countries. If we could imagine a region in which ocular inspection of wounds and ulcers was forbidden,—a Laputat in which the science of medicine only required an accurate account of the symptoms, and of the colour of the discharges, in order to determine the nature of the injury,—if we found such a strong prejudice existing against the exposure of these diseased surfaces, that it would be considered an act "equally immoral as indecent" to remove the bandage that concealed them,—if, further, we observed that the symptoms were combated by a great variety of medicines, in the use of which considerable skill was displayed, the discharges being checked by strong astringents, but no attempt made to examine the ulcer,—if we could imagine all this, we might form some notion of the difficulties that interposed themselves in England to the acquisition of a correct knowledge of uterine inflammation and its consequences. What is true of an ulcer on the leg, is equally so of an ulcer on the neck of the womb; yet, while the former is carefully examined from day to day, the variety of its appearances noted and described, and the exposed surface treated by the best directed local applications, the latter has been treated somewhat after the manner of the Laputans,—left completely to the mystery of medicine. It would require no very great stretch of fancy to predict the results of this Laputan practice; for we should be ready to believe that, if the patient escaped the immediate consequences of such mismanagement, the ulcer would become an incurable annoyance to the patient, and a source of anxiety to the practitioner.

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* Paulus Ægineta, vol. i. pp 624-5.

With such obstacles, it was impossible for the physician, however intelligent, to be properly informed upon uterine diseases; and therefore an "interne" of the great French school of clinical instruction comes before us with peculiar advantages. Whatever may be Dr. Bennet's faults, dullness certainly is not one of them; he has shown the most ardent zeal in his inquiries, and an integrity which makes them especially valuable. His first work, a small duodecimo, on Inflammation of the Cervix Uteri, contained a condensed account of his facts and experience; and we are glad to perceive that the rapid sale of this small work gives the best evidence of the strong desire of the profession to throw aside their prejudices, and to give their best attention to the nature and treatment of the affections hitherto classed under the term "leucorrhea."

We have now equal pleasure in introducing to their notice a larger work on the same subject. We shall not call it a second edition, because, as Dr. Bennet truly observes, it is really a new work. It will be found to contain not only a faithful history of the various pathological changes produced by inflammation in the uterus and its annexed organs, in the different phases of female life, but also an accurate analysis of the influence exercised by inflammation in the production of the various morbid conditions of the uterine system, hitherto described and treated as functional. Henceforth we shall have to commence the study of uterine complaints in the same manner and on the same principle as we do other diseases; we must begin with inflammation; and we anticipate that future works on the diseases of females will devote as many pages to its history and results, as hitherto they have done to leucorrhœa and disordered menstruation.

Dr. Bennet commences his work with a brief outline of the anatomy and physiology of the uterus; in which he points out an essential difference in character and function, between the body and the cervix of the uterus. He adopts Jobert's opinion, that the body of the uterus contains no cellular tissue. He alludes to its dense structure in the more gravid state, to its small supply of blood-vessels and consequent low vitality, to its elementary mucous membrane, so obscure and undefined as to raise a doubt as to its existence. These characters are strongly contrasted with those of the cervix, which "contains cellular tissue of a less dense structure, is more vascular, and has a cavity quite distinct from that of the body of the uterus, lined by a thick, vascular mucous membrane, studded by numerous muscous follicles. . . . . . As a necessary result of this anatomical difference in structure, the mucous membrane of the cavity of the uterus is *rarely* affected with inflammation, whereas the cavity of the cervix is very liable to inflammation." (pp. 14-5.) We fully agree with Dr. Bennet in the frequency of inflammation of the cervix uteri, but are rather disposed to doubt the rarity of inflammation of the body of the uterus; the difference seeming to us rather to consist in the very opposite class of symptoms manifested by the inflammation, as it affects one or the other portions of the uterus. We shall not dwell on some of the anatomical questions that are raised in Dr. Bennet's account of the uterus. The exact shape of the cavity of the body and neck of the uterus is disputed. Dr. Bennet also states, that, at the union of the two cavities, there is during life a natural stricture or coarctation, which closes the cavity of the uterus:

> "This coarctation, which is not mentioned or described by anatomists, exists, I find, always or nearly always in the absence of disease, and is sufficiently great, except soon after parturition, and sometimes for a few days after menstruation, to prevent even a small sound penetrating into the uterus, unless considerable force be used. From its universality, and occasional persistence after death, it must be the result of the anatomical structure of the parts, and probably of the presence of a kind of muscular sphincter. When the mucous membrane of the cavities is inflamed, this sphincter becomes relaxed, and then the uterine probe passes easily into the uterine cavity." (p. 14.)

We should be disposed to think, that inflammation of the mucous membrane surrounding this spincter would have a precisely opposite effect,—that it would tend to close the opening more completely. Our experience of dysmenorrhœa, also, which we assume to be, in many cases, the result of chronic inflammation of the body of the uterus, proves to us that the opening is much more contracted in such instances, than where the uterus is free from inflammation; we know, also, that the dilatation of the supposed stricture as completely relieves its irritability, as it does in stricture of the urethra. The existence of pus, also, in the substance of the uterus,—a result (certainly a rare one) sometimes met with,—makes us hesitate to adopt Jobert's opinion of its structure. Like mucous membrane and muscular fibre, cellular tissue may be only elementary and difficult to demonstrate; but we believe in its existence nevertheless. We shall not, however, allow these questions to divert us from our proper subject,—inflammation of the uterus; nor from the leading point laid down by Dr. Bennet, which we at once admit,—namely, the essential difference, not only in anatomical peculiarities, but also in function, between the body and the cervix of the uterus. Dr. Bennet has well pointed out the powerful influence of the catamenial periods as a predisposing cause of inflammation:

> "As the periodical return of menstruation in the great majority of women takes place at the lunar month, or about every fourth week, and as the menses generally continue four or five days, we find that the menstrual molimen hemorrhagicum must last with most women from seven to ten days at the least. It thus appears that, during very nearly one third of each month, the uterus of a menstruated female, and especially the cervix, the most vitalized region, is physiologically in that condition which, throughout the economy, precedes inflammation,—viz. a state of congestion." (p. 17.)

Hence it is, that the exciting causes of inflammation operate with so much more power at the catamenial than at any other period. The variety in the symptoms presented by such inflammation has been carefully noted by Dr. Bennet; and the results of his experience forcibly illustrate the observations with which we commenced the notice of his work.

> "The most cursory survey of the cases contained in the appendix will show, that although the real cause of the morbid symptoms was the existenee of local inflammation, yet that the apparent nature of the disease was most varied. Some patients complained of leucorrhœa, some of dysmenorrhœa, some of irregular menstruation, some of flooding, some of back-ache, some of bearing-down and prolapsus, and some merely of debility and anæmia. The true nature of the case had to be sifted out, as generally occurs; *what was only a symptom being considered the disease.*" (p. 20.)

Inflammation of the uterus is considered by our author as it occurs in three several situations—first, as it affects the body of the uterus; secondly, the appendages, that is, the cellular tissue and organs contained between the folds of the peritoneum which constitute the lateral ligaments; thirdly, the cervix uteri. Under these several heads a general description of inflammation, both acute and chronic, is given; and separate chapters are devoted to the consideration of the peculiarities which the disease presents; first, in virgins; secondly, in pregnant women; thirdly, in the puerperal state; and fourthly, in women who have ceased to menstruate. Thus a complete account of inflammation is given, in all its phases, and at all stages of life. We shall examine these topics in detail.

Dr. Bennet commences with acute metritis, that is, inflammation of the body of the uterus, which our author believes to be a very rare disease,—

the natural result, he observes, "of the peculiar, dense, fibro-muscular non-cellular structure of the body of the uterus. Tissues of this nature being but slightly susceptible to inflammation as a necessary consequence of their peculiar structure, if the uterine system be exposed to the causes of inflammation, its periphery,—the mucous surfaces, the cervix, the lateral ligaments,—which are so much more *highly vitalized*, are generally the regions attacked." The predisposing causes of such inflammation are to be found in those plethoric temperaments, which manifest a high susceptibility of the uterine system. It would seem as if with them, either the menstrual "molimen hemorrhagicum" was so great as to distend beyond measure the uterine tissues, thus giving rise to extreme congestion and pain; or as if the uterus was so peculiarly sensitive, that even the physiological menstrual congestion could not take place without its sensibility being anomalously raised. Thus any causes which tend to increase congestion about the menstrual period will induce inflammation, such as the extension of chronic inflammation from the neck of the organ, sexual excesses, &c.; and to these Dr. Bennet could add, as occasionally causing acute inflammation, all kinds of surgical interference with the uterine organs, such as cauterization of ulcerations of the cervix, the use of vaginal injections, of pessaries, &c. "Arrested menstruation," which he also assigns as a cause, we should enumerate rather as the effect than the cause of acute metritis. In his account of the symptoms, Dr. Bennet dwells chiefly on those that are local; "severe pains in the hypogastric region, a very disagreeable sensation of pelvic weight, &c., and an exquisitely painful condition of the uterus" itself when felt through the vagina or from above the pubis. The exact situation of this sensitive tumour he takes as a diagnostic mark to decide between inflammation of the uterus and that of the appendages. In the former case, the tumour is in the immediate continuation of the cervix occupying the median line, and is equally painful and evident on the right and on the left of that line; unless, however, the uterus be naturally lying transversely from right to left, as is sometimes the case, when the inflamed organ will extend more to the right than to the left side. In the latter case, the tumour formed by the inflamed tissues is generally applied, annexed as it were, to the side of the uterus, so as only to form one mass. While, however, Dr. Bennet points out these local signs, and refers to the general febrile reaction, he only alludes to, but does not describe, the sympathetic symptoms; nay, he seems almost to discourage our belief in them. "Acute inflammation of the uterus" he observes, "is stated by most authors frequently to give rise to hysterical symptoms. I have seldom, however, found this to be the case, and when they are present, have generally observed them to occur in young females previously subject to hysteria." (p. 29.) We cannot exactly assent to this, believing that those constitutional derangements, whether of the chylopoietic viscera, or of the nervous system, that constitute the complaint called Hysteria, may be very readily excited by acute inflammation of the body of the uterus. It is true that they manifest themselves more clearly in chronic inflammation of that organ; but, nevertheless, we have witnessed hysteria that seemed to have no other source than acute inflammation accompanied with suppressed menstruation. With regard to the progress and termination of acute metritis, it may either terminate by resolution, or by extension to the lateral ligaments, or it may pass into the chronic state. Dr. Bennet has never seen acute metritis in the unimpregnated uterus terminate fatally. Jobert's views of the structure of the uterus seem to stand in the way of suppuration. Dr. Bennet, however, admits its occurrence.

> "Owing to the absence of cellular tissue in the structure of the body of the uterus, there is seldom any formation of pus in the substance of the uterus; it may, however, occur. If the purulent collection is near the uterine cavity, it probably always empties itself therein, and is evacuated through the cervix. When the matter forms near the outer parietes, the inflammation appears to be generally propagated to the cellular tissue contained between the lateral ligaments, and the pus finds its way out of the pelvis as when the inflammation and suppuration have primitively existed in those ligaments." (p. 29.)

From the acute form, Dr. Bennet passes to chronic metritis; and dwells on the importance of not confounding chronic inflammation of the body of the uterus with a similar inflammation of the neck. The seat of this inflammation he places in the posterior wall of the uterus, in its inferior region immediately adjoining the base of the cervix. This is just the part which is most easily reached by the finger in a vaginal examination, and which, if the body of the uterus be at all inflamed, would seem to be the most painful and the most swollen; but we hesitate to believe that such inflammation is confined to that side of the uterus; neither do we think that a longitudinal band of muscular fibres passing into the posterior region of the cervix from the posterior wall of the body of the uterus, is a sufficient cause to determine either the extension or locality of the inflammation. The symptoms that characterise this inflammation are well worthy of attention; because they reveal the source of some errors, both of the older and more modern histories of uterine complaints. With regard to general symptoms, we recognise many of those characters of the disease for which we could find no better name than "protracted disorder of the general health," being confined to functional derangements of the stomach, of the nervous system, and of the general nutrition; the result of the sympathetic reaction of the diseased uterus on the economy at large.

> "The countenance of a person suffering from chronic uterine inflammation is generally pale and sallow, and nearly always offers a very marked expression of pain and languor. It has long been remarked, that patients labouring under chronic uterine disease present a peculiar cast of features, to which the term *uterine* has been applied; but in none is the '*facies uterina*' more indelibly impressed than in those labouring under chronic metritis. It is more especially during the periodical exacerbations of the inflammatory symptoms which menstruation occasions, that this peculiar expression is remarked. Although scarcely ever absent, even in the most quiescent state of the inflammation, it now and then becomes so obvious as to strike the most indifferent. With nearly all my patients thus affected, I can tell, the moment I enter the room, by the physiognomy alone, if menstruation is impending or has commenced." (p. 38.)

In addition to these characters there are "nausea, intense headache, disordered vision or partial deafness, want of sleep, and disagreeable dreams, foul tongue, loss of appetite, flatulence, heartburn, constipation, palpitations, flushings of the face and occasional feverishness." (p. 39.) One would think we were describing an outline of our old acquaintance hysteria; so closely does the state in question simulate this general functional disturbance. The local symptoms of the inflammation also are important; besides the dull aching pains about the back and loins, extending down the thighs, which are always aggravated by motion, and more destressing at the menstrual periods, we have evidences by touch that deserve attention.

> "Instead of the finger passing from the base of the uterine neck on to a smooth, insensible surface, a continuation of the plane formed by the cervix, it meets with an exceedingly sensitive elevation or protuberance, sometimes quite irregular, sometimes irregular and knotty; pressure on this tumefied surface is exceedingly painful. .... As a necessary consequence, the partial tumefaction of the walls of the uterus that follows chronic inflammation, is invariably attended with greater or less displacement of the body of the organ, the nature of the displacement varying according to the seat of the tumefaction. If the posterior wall is the seat of inflammation and enlargement, as is generally the case, the additional weight in this region causes the body of the uterus to fall backwards towards the cavity of the sacrum. The uterus, in a word, is retroverted." (p. 35.)

Dr. Bennet points out the obstinate chronic character of this disease, and very truly observes that "most of the patients affected with chronic metritis, whom I have met with, were considered to be merely suffering from uterine irritation, from displacement of the uterus, retroversion or retroflexion, or from functional dysmenorrhœa." (p. 42.) Such, in fact, has been generally the explanation given of such cases. Dr. Bennet also alludes to a morbid non-inflammatory condition of the uterus, which may be mistaken for this form of inflammation.

> "Thus I have not unfrequently found the uterus present, for some time after the complete cure of inflammatory disease a peculiar state of exaggerated sensibility. The slightest touch occasions pain, sometimes in every region, and sometimes in a limited spot only; but the sensibility is not inflammatory, for if the contact is renewed or the pressure is continued, pain is no longer experienced." (p. 43.)

Internal metritis or uterine catarrh is the next subject taken up; that is, inflammation of the lining membrane of the cavity of the body of the uterus, a disease which is extremely rare, and by no means so common as is generally supposed. Dr. Bennet very correctly observes that it "has only been considered common, because it has been confounded with inflammation of the *cavity of the cervix;* a disease which, on the contrary, is very often met with." (p. 44.) If the mucous or muco-purulent secretion that flows from the os uteri be the evidence of such inflammation, the essential difference between the two membranes is a sufficient proof that such must be the case. We can readily understand the thick, villous membranes of the cervix, abundantly supplied with mucous follicles, being the source of such discharge; but we have some little difficulty in comprehending such an effect in a membrane deprived of follicles, and in which villi can scarcely be observed. Uterine catarrh in this sense is not only a rare disease, but one whose occurrence we very much doubt. The symptoms which Dr. Bennet attributes to this form of inflammation do not remove our hesitation. He admits the difficulty of defining its character.

> "Internal metritis," he observes, "being nearly always complicated by inflammation of the cervix, of its cavity, or of the substance of the womb, its symptoms are rather difficult to unravel; so difficult, indeed, that I do not believe the task has as yet been accomplished satisfactorily by any writer. Internal metritis may be said to exist *to a certainty*, if the os internum of the cervix is so completely open

> as to allow the uterine sound to pass freely into the uterine cavity; if that cavity is increased in size, and is more sensitive, and if, likewise, there is a more or less abundant sero-sanguinolent discharge, accompanied by dull, deep-seated pain in the region of the uterus itself,—that is, behind and above the pubis—and by a certain amount of general febrile reaction. The sero-sanguinolent discharge is the most important of these symptoms; indeed it may be said to be as characteristic of internal metritis, as the rust-coloured expectoration is of pneumonia." (p. 48.)

This sero-sanguinolent discharge is not catarrhal; and if taken in connexion with another equally important symptom, or rather chain of symptoms, wouln serve as diagnostics of uterine inflammation, but certainly not of uterine catarrh.

> "The catamenia are often disordered, generally manifesting themselves more frequently and more abundantly, lasting longer, and being attended with more pain than usual. Sometimes the flow of blood is so great and so lengthened as to constitute flooding, and this is more especially observed, as might be anticipated, when the sero-sanguinolent discharge is present. With some patients, however, on the contrary, the menstrual secretion appears to be diminished; but in either case itmay be laid down as a rule, that the disease is aggravated by the appearance of menstruation." (p. 50.)

Thus dysmenorrhœa, menorrhagia, and this rust-coloured discharge may be taken as evidences of the seat of this inflammation; and we think should never be confounded with uterine catarrh, which is confined to the neck of the uterus. We cannot, however, agree with Dr. Bennet in the fact that, in this form of inflammation, "the os internum is so completely open as to allow the uterine sound to pass freely into it;" neither can we admit that the existence of a constriction "even when carried to such an extent as to render the introduction of the uterine sound impossible," is not necessarily a morbid condition. If pain be an evidence of local inflammation, we have invariably found that pain from the introduction of the sound into the uterus was in direct proportion to the difficulty of introducing it; and that when the constriction was gradually dilated, the pain was diminished, resembling in this respect stricture of the urethra. This, however, is a question of merely personal experience. We are not surprised that Dr. Bennet should be a little obscure in this part of his subject, as the pathological anatomy of this inflammation is as yet, we may say, hidden from him.

> "I have only once seen a uterus presenting evidence of this form of disease in the non-puerperal state; it was in the case of internal ulceration observed by Dr. Hall Davis, to which I have alluded. The mucous membrane presented several large inflammatory ulcerations, situated on the internal surface of the uterine walls, and quite distinct from the cavity of the cervix, which appeared free from inflammation. There was, however, considerable disease of the uterus present, besides inflammation of its cavity. The organ was much enlarged, its walls thickened, and its cavity greatly dilated." (p. 52.)

The diagnostic mark, however, of this inflammation is given with sufficient precision. "There is not (in other forms) that sero-sanguinolent, sanious discharge which characterises this latter disease, nor the often severe reactional symptoms to which it appears to give rise." (p. 53.)

The next chapter on *inflammation and abscess in the non-puerperal state*, and on *inflammation and abscess in the puerperal state*, is full of interest, because it points out a form of inflammation very little understood or alluded to by other authors. Occasionally it has happened, after delivery, that a large collection of pus has formed in the neighbourhood of the uterus, making its way, like psoas-abscess, through the pelvis along the psoas muscles; or bursting into the rectum or vagina. This has been called pelvic abscess, and has been almost invariably considered as peculiar to the puerperal state.

> "Thus out of fifty cases collected from various sources, and published by M. Marechal de Calvi, whose work represents the present state of science abroad, forty-nine are puerperal; out of twenty-three cases quoted by Dr. Churchill, twenty-one are puerperal; the case of Dr. Dogherty is puerperal, so also are the nine cases of Dr. Lever." (p. 57.)

Again it may happen that small collections of pus form about the non-gravid uterus, make their way into the vagina or rectum, and thus discharge themselves, without even receiving the slightest notice from the medical attendant. It is to this important form of inflammation that Dr. Bennet especially directs our attention.

> "It is now more than ten years ago that this fact (non-puerperal pelvic abscess) was pointed out to me by M. Gendrin, the eminent Parisian pathologist, and I have since ascertained to my complete satisfaction the correctness of his assertion." (p. 56.)

The seat of the inflammation is in the fine filamentous cellular tissue surrounding the lower portion of the uterus and uterine appendages; as they are contained in the broad ligaments; and the tendency of such inflammation is to terminate rapidly in suppuration, which in the puerperal state is much more extensive and aggravated than in the non-gravid uterus.

> "In the puerperal form of the disease the uterus itself is nearly always considerably implicated; the inflammation of the ovaries, fallopian tubes, or cellular tissue, has a tendency to extend to the peritoneum and to the cellular tissue lining the pelvic cavity; adhesions to the abdominal parietes, abdominal perforations, and even death, not unfrequently take place. In the non-puerperal, on the contrary, the disease has a tendency to limit itself to the tissues primarily attacked; peritonitis, abdominal perforations, and a fatal termination very rarely occurring." (p. 57.)

The result of this has been that—

> "Owing to inflammation of the uterine appendages having thus been studied only in connexion with the puerperal state, the peculiar features which the disease presents in its milder or non-puerperal shape, have not yet been described. Thus it is that this form passes unrecognised............ The non-recognition of the milder form of this disease has been attended with another evil. The less severe cases of puerperal inflammation itself are often passed over, and extreme cases only being observed and recorded, erroneous impressions become prevalent even with respect to the puerperal form. Thus we find Marechal de Calvi, giving it as an ascertained fact, that the disease is very often fatal, because he finds thirteen fatal cases among fifty—in reality exceptional ones—which he has collected." (pp. 57-8.)

Our ignorance of this form of inflammation is one of the strongest proofs that can be given of the little attention uterine pathology has received. The fine reticular cellular structure which it attacks is abundant, surrounding the ovaries, fallopian tubes, &c. &c., and in intimate connexion with a similar cellular tissue that lines the pelvis.

> "We have thus," to use our author's language, "in the cavity of the pelvis immediately adjoining the uterus, above the pelvic fascia, betweentwo folds, but external to the peritoneum, in contact with the bladder anteriorly, and

the rectum posteriorly, a space containing a mass of filamentous cellular tissue—a tissue peculiarly liable to inflammation—and various other organs, also by their structure, more or less exposed to inflammatory disease. The history of inflammation in the space thus limited, flows so regularly from the laws of pathology as applied to these anatomical data, that it is a matter of surprise to me that it should not hitherto have been elucidated." (p. 59.)

Nevertheless, such is the fact. "'Tis true, 'tis pity, and pity 'tis, 'tis true." We trust, therefore, that we do not overrate its importance. The reason, perhaps, why it has been so neglected has been its general immunity from danger. "There is very little tendency, in the non-puerperal state, to inflammation of the peritoneum; and the organs contained between its folds may remain inflamed during months and years, without its being much affected." The causes of this inflammation are obscure. Dr. Bennet mentions arrested menstruation. In such instances we should rather think that it is the extension of inflammation from the body of the uterus, just as Dr. Bennet mentions its origin in pre-existing inflammation of the cervix uteri, the menses being suppressed because their source was inflamed. But we are much disposed to think that want of caution and undue violence in the manipulation of instruments employed in the investigation of uterine diseases are occasional, perhaps not unfrequent causes. The signs, therefore, by which this inflammation may be recognised are especially deserving of attention, inasmuch as by a careless observer they might readily pass unnoticed. The patient may complain of a dull heavy pain about the loins, a feeling of weight in walking, and that general sense of uneasiness that is common to all these affections; but this rather puzzles than enlightens us, more especially as the uterus, where we always look for disease, may be comparatively free from inflammation. We must look further; and it is here that the mode adopted by Dr. Bennet for examination,—that of placing the patient on the back,—is so preferable to the more usual practice of making the digital examination when she is lying on the side. The patient is placed on her back, the knees being elevated or flexed, the forefinger being introduced into the vagina, the elbow depressed so that the finger may adapt itself to the axis of the pelvis.

> "The pulp of the finger may thus be carried underneath and round the cervix, which should be carefully and accurately examined; then by pushing before the finger the cul-de-sac of the vagina, where it is inserted on the cervix, the state of the body of the uterus, of the adjoining pelvic organs, and of the pelvic cavity generally, may be ascertained with extreme accuracy, especially if the left hand is at the same time applied over the lower hypogastric region, above the pubis. When this mode of examination is adopted in the healthy female, the bladder being previously emptied, the finger may push the vaginal cul-de-sac before it on the side of the uterus for an inch or two, and may be made to approximate within a very slight distance of the hand applied externally, and that without giving the slightest pain. The practitioner feels with the greatest distinctness that his fingers are only separated from each other by the thickness of the abdominal parietes, and by the tissues (the lateral ligaments), which present no great density or resistance. When, however, the tissue contained between these ligaments—cellular tissue, ovaries, fallopian tubes—are inflamed, thickened, and indurated, the state of things is very different. On attempting to push back the vagina on the side of the uterus, we find an unusual resistance. The vaginal cul-de-sac has disappeared, and resting on the side of the cervix and body of the uterus there is an indurated swelling; very different from the normal condition, and very different also from what obtains on the other or

healthy side, supposing disease to exist on one side only, as is most frequently the case." (pp. 63-4.)

This tumour being generally applied, as it were, to the side of the uterus, only constitutes one mass with that organ. Thence it is, no doubt that inflammation in the lateral ligaments is generally confounded with metritis, even when a digital examination is resorted to, and the presence of an inflammatory swelling recognised. When pus is thus formed, it does not accumulate, as after delivery; but is soon circumscribed by adhesive inflammation, and makes its way either into the vagina or rectum, most commonly the former.

> "The passage of even a considerable quantity of pus from the vagina is thought by the patient to be only an increased flow of the whites, and the escape of pus along with the fæces is still less likely to attract her attention........It is owing, no doubt, to the escape of the purulent collection from the cavity of the pelvis, thus taking place in so insidious and latent a manner that unless carefully looked for it is not perceived either by the patient or her medical attendant, that the most severe forms only of the disease have hitherto been recognised and recorded." (p. 67.)

Notwithstanding the trifling constitutional disturbance caused by these small abscesses, they often lay the foundation of protracted ill health; the slightest cause may reproduce them; and it takes some time before all traces of the cyst have disappeared. It is in this respect that inflammation of the uterine appendages differs essentially from inflammation of the womb.

> "Acute metritis generally terminates by resolution under judicious treatment, without giving rise to suppuration, and without leaving behind any traces of its existence. Inflammation of the lateral ligaments, on the contrary, although apparently not a more severe disease in its invasion and period of activity, gives rise to lesions and changes of structure which time only can remove, and which are sometimes never completely remedied." (p. 73.)

We shall not dwell on inflammation and abscess of the uterine appendages in the puerperal state, but proceed at once to the consideration of that part of the work which is properly the second edition of Dr. Bennet's first volume. The fifth and following chapters are occupied with *Inflammation, Ulceration, and Hypertrophy of the Neck of the Uterus.* Our author glances at the anatomical characters of the cervix uteri, and notices the great variety that may be observed both in its length and magnitude even in its healthy condition, a point of some importance when we would estimate the alterations produced by disease. "Indeed," says Dr. Bennet, "these physiological (anatomical?) variations are so great, that were we to allow ourselves to be guided by size alone, as appreciated by the touch or the speculum, we should undoubtedly be often misled, and induced to suppose that disease existed where it did not." (p. 88.) In estimating morbid changes of structure, we must be governed more by deviations from the softness, smoothness, elasticity, and painless condition of the healthy cervix, than by its size. The seat of the inflammation is generally in the mucous membrane covering the cervix and lining its cavity, or in the mucous follicles; the substance of the cervix is also sometimes engaged, especially in general metritis. The causes of cervical inflammation Dr. Bennet divides into predisposing and efficient causes. The anatomical predisposing causes are its greater vascularity and the highly developed structure of the mucous membrane. The physiological are both numerous and important. When the uterus becomes an active organ, its influence radiates over the whole economy; and the molimen hemorrhagicum that precedes, accompanies, and follows the menstrual secretion, too frequently becomes an active predisposing cause of inflammation.

> "In some females, as I have elsewhere stated, it appears to be always morbidly great; in which case there is often great pain experienced throughout life, during the catamenia, or for the first day or two of their presence; and that in the absence of any local inflammatory disease, or of any physical imperfection in the uterine passages. In all, the menstrual secretion is liable to be prevented, diminished, increased, or suddenly arrested, by a host of mental, social, or pathological causes; and whenever this is the case, the natural uterine congestion may become morbid, and thus give rise to inflammation. This accounts for virgins being not unfrequently attacked with inflammation and ulceration of the neck of the uterus (a fact which I have fully substantiated within the last few years), as also for their being liable to the other inflammatory affections of the uterus which we have already studied."

Marriage, however, is obviously a much more powerful and a more fruitful source of inflammation of the cervix, which gives rise in some instances to sterility, in others to abortion.

> "In some females the uterine system appears to be so extremely sensitive, that inflammation follows intercourse nearly immediately, even when the bounds of discretion have not been overstepped. Owing to the operation of these latter causes, many young females are attacked with inflammation and ulceration of the cervix uteri within a few days or weeks after marriage, and when such is the case they mostly remain sterile. If they do conceive, successive abortions or miscarriages generally take place; and this is the explanation of the repeated abortions which sometimes occur during the first years of married life, and prove so embarrasing to the practical accoucheur." (p. 91.)

Even should the pregnant woman escape such unpleasant consequences, we find her again at the period of parturition exposed to additional risk. The violence of uterine action may cause lacerations of the cervix; and although the substance of the cervix may escape, still the mucous membrane lining its cavity is liable to contusion, erosion, and laceration. These branches of surface generally heal favorably; but if exposed to the irritation of morbid discharges, they become the seats of inflammation and of subsequent ulceration. These ulcers are situated in the cavity and between the lips of the os uteri. Dr. Bennet has frequently observed these some weeks after a natural labour. "It is, indeed, evident to me," he says, "that a large portion of the cases of inflammation and ulceration of the cervix, met with in practice, originate in this manner." What an instructive lesson is this in practical midwifery! What an argument against all attempts to hasten the dilatation of the os uteri by mechanical means, so as to excite this very inflammation, the effects of which may not manifest themselves for months afterwards! The cervix uteri is also more disposed to enlarge and become hypertrophied in women who have had children, because it is more highly vitalized. In more advanced life, when the function of the uterus is about to cease, congestion remains for a considerable time afterwards, and therefore it may still be readily inflamed. *The symptoms of inflammation* of the neck are divided into anatomical, local, functional, and sympathetic or constitutional. *The anatomical characters* of this inflammation are the result of the increased weight and size of the cervix; it falls more into the vaginal cavity (the procidentia of the older authors), and is generally retroverted. When the cavity of the cervix is inflamed, Dr. Bennet states that it expands; and thus by the patulous state of the os uteri, we have a diagnostic sign of the seat of this inflammation. We have certainly noticed this open condition of the os uteri frequently, especially when ulceration extended into the cavity of the cervix; but we have also as certainly observed inflammation of that cavity, accompanied with muco-purulent discharges; in which the os still remained in its ordinary state. Dr. Bennet also considers the open state of the os internum as an evidence of the extension of the inflammation of the cervix to the body of the uterus; this also, for reasons already stated, we are disposed to doubt. The glairy mucus, more or less mixed with pus, the facility with which the surface bleeds, and the dark livid red hue that it presents when the lower lip of the os is depressed with the sound, are also very easily-ascertained signs of this inflammation, which, as Dr. Bennet very properly observes, is too commonly confounded with inflammation of the body of the uterus.

When inflammation terminates in ulceration, the ulcers vary exceedingly in their appearance, from a simple abrasion of surface, to one covered with fungous granulations. We quite agree with Dr. Bennet in the opinion that the continental writers are too refined in their divisions of forms and species of ulcerations.

> "An ulceration occupying the cervix uteri may present all the various modifications which suppurating surfaces offer in any other part of the body, from the minute granulations of a slight abrasion to the livid vegetations of an unhealthy sore; but these modifications of the ulceration require in reality no division or classification." (p. 102.)

Any division of these ulcers that may be made for practical purposes, should have reference rather to the conditions of the constitution that accompany them, or to their specific character. Thus we have the vivid red, small, and firm granulations of the healthy constitution, scarcely bleeding when touched, contrasted with the large, fungous, livid ulcers of the debilitated habit, that bleeds profusely on the slightest irritation. There are also the syphilitic ulcer, and the different forms of malignant ulceration. Dr. Bennet states that, "whatever the character of the inflammatory ulcerations of the cervix, the ulcerated surface is *never excavated*, it is always on a level with or above the non-ulcerated tissues that limit it." He also truly points out the extreme difficulty of ascertaining the existence of these ulcerations by touch.

> "This soft velvety sensation, and the open state of the os uteri, are the most important evidences of the existence of ulceration that touch can furnish. They do not, however, conclusively prove the existence of ulceration, inasmuch as inflammation of the cavity of the cervix alone will open the os, as we have seen, more or less; and the velvety sensation cannot be depended upon, owing to the very variable nature and seat of ulceration. If it be situated deeply between two rounded lips or inside the os, the finger does not reach it." (p. 104.)

We can fully confirm the truth of this observation, which should always be borne in mind by the physician who would investigate these diseases. The various characters of the discharges from these inflamed surfaces are well pointed out. The white milky discharge of the upper part of the vagina; the thick, tenacious, transparent, ropy, white-of-egg mucus from the cavity of the cervix; the thick purulent discharge of the ulcer; and the sanguineous discharge of the fungous granulations: affords us from this one source almost as many varieties of discharges, as Sir Charles Clarke has enumerated from every other source but this. One of the most important of the anatomical changes that results from inflammation, is hypertrophy and induration. "The extent to which inflammatory hypertrophy of the cervix may be carried, is perfectly surprising; the size of the uterine neck thus affected varying from that of a small walnut to that of a man's fist." This alteration of structure is much more remarkable in those who have had children, than in those who have not. Dr. Bennet has also remarked, that the sooner the inflammation takes place after a miscarriage or abortion, the greater will be the amount of induration. In stating that this increase of volume is the effect of ulceration, and follows upon it, he differs altogether from several French writers, who assert that the hypertrophy is pre-existing, and is the principal cause of the ulcerations which nearly invariably accompany it. This opposition is perhaps more apparent than real. The enlarged and indurated condition of the cervix is undoubtedly the result of inflammation; but it is probable that its tendency to terminate in ulceration is determined and hastened by the constant attrition of the inflamed surface against the vagina, which the weight of the cervix keeps constantly applied to it. This, however, is not always the case. Dr. Bennet "has frequently seen cases in which a slight ulceration was at first the only lesion, and in which the general induration, which subsequently made its appearance, gradually became more and more marked as the ulceration increased in extent." The alteration produced in the os tincæ, in consequence of this change of structure, is deserving of notice. Both lips may be equally indurated and enlarged, sometimes the anterior alone, or the posterior. The indurated cervix is often divided into separate lobes, which are generally an evidence "of antecedent laceration of the cervix during an abortion, a difficult or instrumental labour, or even sometimes during a natural labour." The lobules are sometimes of a stony hardness, and are frequently confounded with scirrhus cancer. Dr. Bennet points out an easy and we think a valuable means of diagnosis. "When the lobular, knotty, irregular condition of the cervix is the result of laceration, and is simply inflammatory, the fissures which separate the lobes radiate round the cavity of the os as a centre, each separate lobe being perfectly smooth in itself, and free from tubercles or superficial inequalities." (p. 112.) This is not the case in a cancerous tumour. This great increase of volume leads to a descent of the cervix, sometimes almost to the vulva, and consequently may give rise to all the symptoms of prolapsus uteri, so often repeated in every work on the diseases of females. *The local symptoms*,—the extension of the inflammation to the neighbouring parts, the vagina, the rectum, and the bladder,—the seat of pain, &c.,—are well pointed out by our author. Its effect on the rectum particularly is worthy of attention. The enlarged cervix presses directly upon it, produces congestion and irritation, prevents the fæces passing, distends the intestine, and destroys the natural contractility of the bowel; and obstinate constipation is the result, which alternates with discharges of mucus as well as fæces, when the bowels are excited to action; hence also the great pain which accompanies a motion, and the production of hemorrhoids and prolapsus ani. The situation to which the pain that results from cervical inflammation is referred, has been the chief cause of obscurity and mistakes respecting its existence. The pain felt is always at a distance from the inflamed part; the dragging pains of the loins, the pain of the left iliac region, the uneasiness above and behind the pubis, especially when accompanied with irritation of the bladder, are all calculated to mislead. The cause is either set down as prolapsus uteri requiring a pessary, an inflamed ovary, or perhaps a stone in the bladder. Hence the confusion in the treatment of such cases. Further than this—

> "Extensive inflammatory and ulcerative disease of the cervix may, indeed, be present for years *without giving rise to pain or to any well-marked local symptom*; the only evidence of its existence, especially to a superficial observer, being functional derangements of the uterus, and the general sympathetic reactions which we shall presently have to investigate." (p. 123.)

We can bear testimony to the truth of this remark. Cases will occasionally present themselves, in which inflammation and ulceration of the cervix is the very last cause that would be suspected to produce the symptoms that were complained of. *The functional symptoms* are, irregularities in menstruation, and an aggravation of the pains that characterise the inflammation, at the catamenial periods. The influence also of inflammation of the cervix upon conception is very important; too frequently it causes sterility.

> "The great majority of originally sterile females by whom I am consulted, present some obscure inflammatory affection of the uterine neck, which can nearly always be traced to the period immediately following marriage, and in some to an epoch antecedent to marriage. Not only does inflammatory disease strike with sterility those whom it attacks, who have never conceived, but it also frequently renders sterile for a time, or even permanently, women who have previously borne children. This is too frequently the case, that if a female, in the prime of life, who has previously been fruitful, suddenly stops child-bearing without any evident cause, and if her general health fails, or she presents the slightest uterine symptoms, we may at once suspect the existence of inflammation of the cervix." (p. 121.)

Thus the removal of inflammation, and the healing of an ulcer, may sometimes remove the barrenness that is consequent upon it. If conception and pregnancy should take place, and in some highly susceptible constitutions it will do so, notwithstanding the ulceration, there is then the risk of miscarriage constantly presenting itself; and even if the patient escape this and arrive at the full term, labour is rendered more severe and more difficult, in consequence of this unhealthy condition of the cervix. Inflammation that may have been to a certain extent subdued, is renewed by the act of parturition, and may lead to a rapid extension over the whole uterus soon after delivery, giving rise perhaps to peritonitis or to pelvic abscess, or if the patient escape this, to a protracted recovery, followed by all the former symptoms of inflammation.—*The sympathetic symptoms* include all those functional derangements that are so commonly met with in the diseases of females. Impaired digestion, or a morbid appetite, nausea, gastralgia, oppression at the præcordia, pyrosis, pain at the epigastrium or under the left mamma, headache, unrefreshing sleep, and disturbed dreams; all these symptoms bring us back to the "protracted ill health" of previous authors. Dr. Bennet connects them with chronic inflammation of the cervix. So also, occasional attacks of dyspnœa, palpitations, the gradual progress of anæmia, with emaciation, cephalagia, mental depression, and those anomalous cerebral symptoms that are so characteristic of hysteria, have been frequently observed by our author in connexion with this form of inflammation. Hysterical convulsions, however, he has rarely observed; hence he infers "that hysteria is not a uterine affection, but a malady of the cerebro-spinal nervous system, which is not necessarily connected with the uterus and its morbid states, although uterine disease, by its reaction on the cerebro-spinal system, occasionally becomes an exciting cause of convulsive hysteria."

It is natural for an author whose mind is intensely directed to the investigation of an important practical question, to attribute all deranged actions to the unknown cause which he has discovered to produce so much disturbance. So it is probable that Dr. Bennet may be disposed to view ulceration and inflammation of the cervix uteri too much in the light of a cause, when he finds it accompany a chain of general functional derangements; but, although he may err from a pardonable leaning to his favorite subject, nevertheless his observations are of the highest value, because hitherto we also have wandered very far away from the truth in taking a precisely opposite course. Practitioners have considered these symptoms as purely functional; and although often embarrassed to explain their anomalous character, or to decide exactly upon the function that was disordered, a local phlegmasia was the very last cause that would have been looked for to unravel our entangled ideas. When, therefore, we are not clear as to the cause of the general symptoms that present themselves, inasmuch as the local symptoms of the uterine malady may be absent, so that it only reveals itself by the constitutional or sympathetic reaction, we are authorized to *suspect* the existence of some chronic uterine inflammation, even in the absence of decided uterine symptoms.

> "We are thus authorized to suspect the cervix to be affected, from the isolated existence of any of the following symptoms: sterility, increased pain during menstruation, a great change in the amount and duration of the menstrual secretion; slight continued pain in the lumbar or ovarian regions, bearing down, vaginal secretion, pain in congress, modified uterine sensibility, &c. Indeed, any one of the various symptoms which I have enumerated and described, may exist alone in a slight form as the sole local indication of the existence of inflammation and ulceration." (p. 150.)

With regard to the termination of this disease, it is seldom fatal, unless indeed indirectly by inducing that cachectic condition of the constitution, which predisposes to the reception of other diseases; hence the prognosis may generally be considered favorable, because, if the proper treatment be adopted, "no matter how great the debility, exhaustion and emaciation—no matter how severe the pelvic irritation, or how intense the sympathetic reactions, all may be subdued in time, and the patient restored to health. There are few diseases, indeed, in which medical treatment is capable of effecting a greater change in the state of the patient." (p. 153.) In concluding a general outline of this very important disease, Dr. Bennet very truly and pointedly refers to the mistakes that are made about it, and the misnomers under which it lies. Leucorrhea or "whites" is generally called "a weakness" attributed to debility, to be cured by astringents and strengthening medicines. Even the presence of pus in the discharges will not shake this general belief; it is still the result of weakness. Dr.

Bennet very properly asks, "What medical man in his senses would think of attributing the daily expectoration of a considerable quantity of pus from the lungs or the intestinal canal to mere debility?" And yet the mucus and muco-purulent discharges from the vagina are stated to result from a cause, which would be admitted to be absurd, if any other mucous membrane were the part affected.

We have already alluded to the procidentia uteri of authors, as a most convenient term to explain the symptoms of hypertrophy of the cervix, but a most mischievous one when it is to guide the practitioner in his treatment of the case. But of such errors there is none so frequent, so popular, and we might also add, so convenient to explain very aggravated cases that may terminate fatally, as *Cancer of the Womb.* If a patient, after a harassing and protracted illness, seeks the advice of the obstetric physician, it is to know if she has cancer of the womb. If he is called in consultation about a difficult and doubtful case of uterine affection, the chances are ten to one that he is asked whether the induration and enlargement of the cervix uteri is not evidence of carcinoma. Thus cancer becomes a kind of scapegoat to relieve us from the responsibility of unsuccessful cases. The observations of Dr. Bennet on this point are therefore well worthy of attention. "As a general rule, however, inflammatory ulceration of the cervix seems to me to have very little tendency to degenerate, and patients labouring under cancer very seldom present inflammatory antecedents." (p. 152.) No doubt cancerous degeneration of the tissues may follow a previous morbid alteration in the cervix uteri, just as it is observed to occur in the mammary gland or the lip, if either are indurated by a previous inflammation; but it is important to know that such cases are the exceptions to the general rule.

Having thus given a very complete general account of this form of uterine inflammation, our author next proceeds to explain to us its varieties, according as it occurs in the virgin, during pregnancy, after abortion or parturition, when the menses cease, or when it accompanies uterine polypi and fibrous tumours of the uterus. With regard to the existence of inflammation and ulceration in the virgin uterus, Dr. Bennet has certainly discovered what no one before him had found out. On this point of pathology we are indebted to him for a new fact, established by the direct proof of illustrative examples. At first, our author was doubtful whether the ulceration was a limited exception, or a more general fact; but further experience has convinced him that the latter is nearer the truth. "The experience of the last few years has shown me that the above extract (as to the infrequency of inflammation in the virgin uterus) contains an error which I have now to correct. Not only *may* inflammation and ulceration of the uterine neck exist in the virgin female, but it *does* exist, and not *very* unfrequently, if I may judge by the results which consultation and dispensary practice have latterly afforded me." (p. 160.) This is certainly a very important fact; as many of the symptoms which are imperfectly defined as the effect of protracted disorder of the female constitution, obtain a precise meaning when we can examine them in connexion with an obvious cause. Thus, suppressed menstruation, dysmenorrhœa, menorrhagia, are more intelligible as the effects of a pre-existing inflammation, than as derangements of a function—deranged we know not how. This new fact of Dr. Bennet's, therefore, is highly important; but it is one surrounded with difficulties. Functional derangements of the uterus may exist and do exist, without any inflammation being present to explain them ; nay, the uterus may be in a precisely opposite condition. These derangements may be accompanied by the same symptoms of general constitutional disturbance, that also attend inflammation. There is, therefore, a difficulty of deciding upon the existence of inflammation, by sufficiently clear diagnostic symptoms. An examination *per vaginam* may be suggested ; but here a difficulty, almost insurmountable in some instances, meets us. The refined and chastened delicacy of the female mind revolts against the very idea of such examination. It is only prolonged suffering that subdues it to submission ; and then only when the patient is given to understand that there is no other way of affording relief. The necessity, therefore, of such an examination must be clearly established, before it is proposed ; and here we are glad to find that Dr. Bennet is equally impressed with this necessity. " It is, however, of the utmost importance that no physical examination should even be thought of in an unmarried female, unless there be next to a moral certainty that inflammation and ulceration of the uterine neck actually exist. Fortunately, a practitioner familiarised with the disease, may generally acquire this conviction by oral examination of the patient, and by a careful and judicious appreciation of all the elements of the case." (p. 163.) We sincerely hope that this last observation is correct ; because, if well founded, it saves the practitioner from much of the embarrassment which these cases create. What are the elements we should look for, to arrive at our decision ? A sanguineous temperament ; irregularity of the menses ; pain greatly increased at the catamenial periods, and referred to the same situations as in the married female ; a permanent white vaginal discharge, always augmented at these periods ; and a feeling of weight and dragging pain, but not to the same degree as in other cases. Of these symptoms, the most prominent is, a severe form of dysmenorrhœa superseding a healthy state of the uterine function. Thus far the case is tolerably clear ; we have every just reason to suspect inflammation, and to require an examination. But then patients of a very different class are met with, among whom extreme general debility is the prevailing character of the disorder. In these we should not expect to find inflammation ; nevertheless, Dr. Bennet finds such sometimes to be the case. " In the absence of some tangible cachexia, I may safely say, that I scarcely ever meet, even in virgins, with extreme general debility and weakness coexisting with leucorrhœa, without finding, on a careful scrutiny of the case, that there is inflammation, and, generally speaking, ulceration of the uterine neck." (p. 165.) With these symptoms of debility, the indigestion, mental depression, nervous agitation, spinal irritation, &c., which also characterise the disease, are still more calculated to confuse us. Dr. Bennet " has seen severe convulsive hysteria followed by partial paralysis, in the virgin—the evident result of inflammatory ulceration of the neck of the uterus." (p. 166.) Such cases constitute our real difficulty, because the necessity for a vaginal examination is by no means so clearly indicated ; however, we are quite willing to admit that, if all other means fail, we are justified, even here, in endeavouring to ascertain whether such a cause as inflammation may exist or not. We quite agree, therefore, with our author, that

' Whether the existence of the disease, however, be considered certain or doubtful, an attempt may be made to cure the patient by simple palliative remedies, injections, rest, &c., if the circumstances of the case admit of delay; *but, if they do not*, or if these means have been tried and have failed, a digital examination of the uterine organs should be resorted to without hesitation. The welfare of the patient is the paramount consideration, and if it becomes absolutely necessary to acquire more information respecting the state of the uterus, all other considerations must give way." (p. 167.)

When we have arrived at this desirable point of information—the existence of inflammation and ulceration, our difficulties are far from being removed; we have still another mode of examination, and to the virgin a very serious one, to propose, before any local treatment can be undertaken. Dr. Bennet proposes the question. "When the existence of ulcerative disease of the uterine neck has been thus recognised in a virgin, what course must we follow?" He answers, "The speculum must be used, if possible, without dividing the hymen; but if its introducaion is otherwise impossible, the hymen must be carefully divided." The reasons Dr. Bennet assigns for this step are, the inefficacy of all non-instrumental means of treatment, and the disastrous effects which the diserse sometimes produces on the female constitution. We think that the Profession will pause a little before uniting in this reply. We are ourselves disposed to demur. First, because, in slight or moderate degrees of ulceration, although the cure may be more protracted, we think that much may be done by perfect rest and by injections carefully used. We know that a strong solution of nitrate of silver may be injected upon the ulcerated surface with great benefit. Secondly, in more aggravated cases, which are generally attended with a profuse leucorrhœa, the mucous membrane of the vagina is so relaxed that there is very little difficulty in dilating the hymen sufficiently to introduce the bivalve speculum without destroying it. Even in cases which may at first present some difficulty, the dilatation may be accomplished gradually by the introduction of sponge tents for the purpose. We are not quite satisfied, therefore, that the division of the hymen, even with virgins of a certain age, is required; and we confess to a prejudice in favour of preserving it, if possible. It is but just to our author to state that he also manifests a great reluctance to the operation. "I very seldom, however, have occasion to divide the hymen, as I find that, with patience and gentleness, and the assistance of local antiphlogistic treatment, it may, in most instances, be sufficiently dilated to admit the small speculum which I use." (p. 168.) And further: "As, however, an investigation of this nature is a serious matter, and must be equally repugnant to the feelings of the medical attendant and of his patient, it should only be resorted to as an extreme measure—as a last resource." (p. 170.)

Inflammation and ulceration of the neck of the uterus during pregnancy is also, like the preceding, to be classed among the new facts of uterine pathology. Its existence was discovered by M. Boys de Loury, one of the physicians of the St. Lazare, the hospital for syphilitic prostitutes. Speculum examinations being made of every patient, some of whom were pregnant, it was thus discovered that inflammation and ulceration of the cervix was not an uncommon disease. There is no good reason for thinking that it should be uncommon, inasmuch as pregnancy must increase any local congestion that may exist, and thus rather predispose to inflammation, if the cervix be exposed to its exciting causes. The wonder, therefore, is, not that this complication should exist, but that it never before should have been suspected. Dr. Bennet has found that "when inflammatory ulceration of the cervix exists during pregnancy, a minute inquiry into the previous uterine history of the patient will generally prove that it existed *previous* to pregnancy" (p. 192);—an evidence that, although inflammation may, in many cases, cause sterility, this is not always the case. The anatomical character of this ulceration under pregnancy is very different from what is usually observed; one of the most remarkable of these is the absence of induration.

> "If the cervix has been previously hypertrophied and indurated, it begins to soften about the third month, the softening first taking place in the intervals of the segments, if the induration is lobular, and subsequently pervading the entire cervix. This gradual softening of the hypertrophied and indurated cervix, which appears to take place under the influence of the changes that occur in the uterus during pregnancy, no doubt accounts for induration of the os at the time of labour being so very rare, when compared with its frequency in females who present it as the sequela of chronic inflammation." (p. 196.)

The os tincæ is also more open than is usual in the healthy gravid uterus, and the granulations assume a fungous character, and bleed readily. In the midst of this fungous surface may sometimes be felt small, moveable indurations, of the size of a large pin's head, constituted by indurated and hypertrophied mucous crypts. This fungous character Dr. Bennet has observed to commence about the end of the third or fourth month of pregnancy. The hemorrhage from these ulcers is so far important that it is often periodic, and, consequently, simulates menstruation, thus destroying one of our landmarks for the duration of pregnancy, and, perhaps, leading us into error, at least in some cases, respecting the coexistence of menstruation and pregnancy. Our author has also remarked the greatly increased functional disturbance that ulceration excites.

> "One of the commonest and most distressing of the general symptoms is an aggravation of the sickness, which is naturally present during the first months of pregnancy. The existence of inflammatory ulceration of the cervix indeed will, I believe, be found to be the key to those cases of obstinate sickness which occasionally defy all medical aid, reduce the patient to the brink of the grave, and sometimes even render it necessary to bring on abortion, in order to secure the life of the mother." (p. 198.)

This increased irritation of the stomach is certainly a very important fact, and may explain our difficulty, in many cases, of removing it by general treatment; but we are hardly disposed to go so far as Dr. Bennet, in attributing to ulceration of the cervix those extreme cases of excessive vomiting, that endanger the lifeof the patient, and render the induction of abortion necessary; for these seem rather traceable (like analogous phenomena consequent upon lactation) to peculiar constitutional irritability, than to an excess of local irritation, which can scarcely be supposed adequate to the production of this remote effect, if it does not manifest itself by local consequences.

Theeffect of inflammation of the cervix in predisposing to abortion, is much more obvious and intelligible; and wequite agree with Dr. Bennet that the inflammatory affections of the lower segment of the uterus will be found to be a frequent cause of abortion; being equally with him convinced "that they are the unsuspected origin of a very large proportion of the abortions and miscarriages that occur." This fact renders the treatment of such ulcers highly important, as the best means of preventing abortion. "When the progress of cicatrization has fairly set in, and the irritability of the ulcer and of the surrounding tissues has been subdued, there is but little fear of abortion taking place. But until this is the case, abortion is imminent, and may, indeed, be feared daily." (p. 199.) The irritability of many an unknown ulcer may have been subdued, and abortion thus prevented, by the long-continued and perfect rest enjoined by the practical accoucheur to prevent miscarriage taking place. We are happy to find Dr. Bennet endeavouring to remove any general but equally erroneous impression, "that the use of the speculum in pregnant women is dangerous, and likely to give rise to abortion." We quite agree with him that such a notion is most unfounded.

Inflammation and ulceration of the neck of the uterus during and after abortion and parturition is equally deserving of attention with that which occurs during pregnancy. Inflammation, ulceration, and the induration that accompanies it, become a most embarrassing impediment if abortion or miscarriage take place; hemorrhage is increased and prolonged by it; and the ovum, although detached, cannot escape from the uterus, because the cervix will not yield sufficiently to admit of it. From this cause also, the risk of flooding from the uterus is increased. The effect of a diseased cervix uteri on labour is also very important. Dr. Bennet has observed it increase considerably the severity and intensity of the pains.

> "The uterine contractions are so violent, so incessant, and, for a long period, so totally inefficient, that it is impossible not to fear rupture of the uterus. . . . A few years ago, I attended a female presenting this form of enlargement and induration of the uterine neck in the ninth month of her pregnancy, and she was thirty-six hours in continual labour before the os began to dilate. The cervix, in the form of a fleshy tumour, the size of a fist, was pressed down to the vulva at each pain. The pelvis being roomy, impaction did not take place, and the indurated tissues gave way at last, the os dilating sufficiently to admit the passage of the child. This, indeed, has always occurred in the cases I have seen, however protracted may have been the resistance which the diseased tissues have offered. The patient has had several previous confinements, all of which were prompt and natural. On inquiry, I found that she had been suffering the usual symptoms of imflammatory ulceration of the cervix since her last labour, which had occurred some years previous." (p. 224).

Another very important observation of Dr. Bennet's is, the influence of difficult and instrumental labour in producing those lesions that form the foundation of subsequent inflammation and ulceration. "This," he observes, "is satisfactorily proved by the great frequency of inflammatory disease of the cervix, after confinements of this description. In such cases, the cervix generally presents deep fissures caused by the lacerations." (p. 225.) Our author's experience thus becomes a valuable commentary on the treatment of difficult labours, as it proves that it is not the delivery alone of the patient that must be considered, but its subsequent effect upon her future health. How often has the practical accoucheur met with instances, in which a fluor albus, attended with protracted disorder of the general health, has been traced to a previous delivery with instruments; and hence all instrumental assistance has been condemned, because sometimes instruments have been most improperly used. But the symptoms that characterise the ulceration of the cervix are most commonly misinterpreted, and, therefore, do not attract attention to their cause.

> "The most prominent of all the symptoms occasioned by the presence of inflammatory ulceration of the cervix, during the puerperal state, and after abortion, is hemorrhage. . . . When there is ulceration, the flow of blood often continues, in greater or less quantity, for three, four, six, eight, or more weeks. The blood thus excreted may be pure, or it may be mixed with muco-pus. This hemorrhage generally resists the action of all the usual anti-hemorrhagic remedies, its continuance frequently producing excessive debility and anæmia." (p. 226.)

This is so completely a diagnostic symptom, that Dr. Bennet has no hesitation in saying, "that when hemorrhage continues after parturition for weeks beyond the usual time, there will *nearly always* be found some inflammatory and ulcerative lesion of the cervix, and that an instrumental examination is indispensable. Once the real nature of the disease is ascertained, the hemorrhage may, generally speaking, be immediately stopped by the cauterization of the ulcerated surface, from which it seems, in these cases, principally to proceed." (p. 228.) Dr. Bennet has also observed another fact of great importance in the practice of midwifery—the predisposition to abscess of the lateral ligaments and to puerperal fever, in patients who have ulceration of the cervix. We can readily conceive how easily inflammation may extend itself from a point already inflamed, when that part is exposed to such extreme irritation as labour must produce. An open ulcerated surface is also a ready absorbent of any morbid poison that may be present; and hence it is very probable that puerperal fever will more readily fasten upon these patients, than upon more healthy subjects.

We shall not dwell upon ulceration in advanced life, because the uterus, having again become a supernumerary organ, and being atrophied, the disease either gradually disappears, or some degeneration of the tissues occurs, leading to a new disease. Our author has detected ulceration to be the frequent companion of morbid growths in the uterus, such as polypus, fibrous tumours, &c.

> "In a large proportion of the cases of fibrous growths developed in the substance of the uterus, which I have met with during the last few years, in unmarried as well as in married females, I have detected inflammatory ulceration of the cervix. . . . . Whatever the theoretical explanation may be, the fact is certain, and is practically important." (p. 247.)

Here the explanation of the severe local pains, the leucorrhœa, and the constitutional disturbance, often met with. Ulceration is much more frequently attendant upon vascular than upon fibrous polypi. In fact, Dr. Bennet has found it a constant occurrence.

From this outline of inflammation of the uterus in the various phases of the female constitution, we turn with great interest to a review of "the connexion between inflammation of the uterus or its neck, and functional derangements and displacements of the uterus." Our author examines severally those derangements that have hitherto been considered to be evidences merely of functional disturbance, and points out how frequently their true source is to be found in inflammation of the uterus. He further shows, how often displacements of the uterus, that are usually considered as a mechanical effect, are attributable to the same cause. His observations are therefore highly interesting, not only because many of them are novel, but because they may correct some errors into which the mechanical school of uterine pathologists have fallen. It is true that our author sometimes falls into an opposite extreme; for he errs in concentrating his mind too much upon one bright and practical idea of uterine disease, which has hitherto been undoubtedly too much neglected. In his notion of the female constitution, he may sometimes, perhaps, remind his readers too much of the tanner's proposal for fortifying his town; "nothing like leather" being easily metamorphosed into "nothing like inflammation" to explain female complaints. But, although a pardonable zeal may carry his views beyond the strict limits of fact, nevertheless, it must be admitted that this very enthusiasm has elicited facts of the highest importance, not previously observed. Thus, Dr. Bennet considers in detail the connexion between inflammation of the uterus and leucorrhœa, amenorrhœa, dysmenorrhœa, menorrhagia, and uterine hemorrhage generally, sterility, abortion, prolapsus, anteversion, retroversion, retroflexion, and even chlorosis and hysteria. We need not dwell on leucorrhœa, its connexion with inflammation being sufficiently obvious; but this is not the case with *amenorrhœa.* Nevertheless, Dr. Bennet has been repeatedly consulted for confirmed amenorrhœa, by females who were labouring at the time under ulcerative inflammation of the uterine neck, and in whom amenorrhœa has evidently come on subsequently to the uterine disease. *Dysmenorrhœa* is, however, much more frequently the result of this cause, especially when it succeeds to a healthy condition of the uterine functions. "Since I ascertained this fact," says Dr. Bennet, "nearly all the cases of *extreme* dysmenorrhœa in the unmarried female that have come under my notice, have proved to be of this description; and however intractable before, have yielded as soon as a proper antiphlogistic treatment has been adopted." He relates two cases of epileptiform convulsions accompanying this form of deranged menstruation, which was the result of inflammation. Dr. Bennet admits that contraction of the cervical canal and of the os internum may also be a mechanical cause of dysmenorrhœa; but makes the distinction, that in the latter case the pains are entirely confined to the menstrual period. In the former "there is not the same immunity from uterine symptoms in the interval of the catamenia" He differs from Dr. Simpson as to the healthy condition of the os internum; not believing that the sound will pass without effort into the cavity of the healthy uterus:

> "There evidently exists at the os internum a kind of muscular sphincter, formed by a strong band of the circular muscular fibres of the cervix, and destined to close the uterus during the latter stages of pregnancy. This sphincter, in the natural and ordinary state, is sufficiently closed to prevent the uterine sound passing into the cavity of the uterus, unless a considerable amount of pressure be exercised." (p. 279.)

We quite admit the sphincter Dr. Bennet speaks of; but our experience does not support him in his view of its action. We have found it almost analogous to stricture of the urethra,—its muscular fibres, like those of the urethra, offering no opposition to the passage of a sound or bougie when the mucous membrane is healthy, but strongly contracting and opposing it when inflamed. Extreme dysmenorrhœa from congenital contraction of the cervical neck and os internum, independent of inflammation, Dr. Bennet believes to be of *rare occurrence;* but admits that it sometimes happens, which he illustrates by a remarkable case that he cured by mechanical dilatation. A similar case has fallen within our own experience.

Menorrhagia is a derangement, the causes of which have hitherto been very much misunderstood. Uterine congestion in the robust, atony in the weak constitution, have been considered sufficient causes to explain its occurrence, in cases in which the existence of fibrous tumours in the uterus, or cancerous degeneration of its tissues, were not present to maintain frequently repeated hemorrhages. An increase of the menses and its more perfectly sanguineous character has never been attributed to inflammation and its consequences; yet nothing is more likely to occur in a structure liable to natural and periodic congestion. Dr. Bennet finds, as the result of his experience, that—

> "In the absence of malignant disease and uterine tumours, the quantity of blood lost during menstruation is seldom increased for a continuance, so as to constitute hemorrhage, and the menstrual periods are seldom morbidly approximated, unless there exist some chronic inflammatory and ulcerative disease of the cervix, or unless menstruation be finally disappearing. This assertion on my part is not the result of theory, but *of scrupulous observation*, and must become equally evident to practitioners who will accurately investigate the state of the uterine organs of patients so affected." (p. 282.)

There is sufficient here to authorize a more careful examination of cases of this description than we might at first be disposed to require. Certainly, when there is not only an increase of the catamenia, but a change in its character; when it is mixed with coagula, and becomes hemorrhage; an examination should always be made, to ascertain its true source; because, as Dr. Bennet remarks—

> "The hemorrhage being in reality nearly always the result of local disease, the latter is the element to be attacked and subdued. Instead, therefore, of an intricate and complex system of therapeutics, founded on a host of indications, the practitioner has only *to bring to light, and treat* the disease which causes the mischief. By so doing, he removes the morbid condition which keeps up the hemorrhagic state, and menstruation spontaneously returns to a natural state." (p. 283.)

But here, again, we must hint, that we consider our author much too exclusive in his views.

Sterility is also, according to Dr. Bennet's experience, an effect of chronic inflammation of the body and of the neck of the uterus; he has observed it both in those who have never conceived, and in those who have:

> "In a very large proportion of the cases of confirmed sterility from the onset of marriage, for which I have been consulted, I have found chronic inflammation and inflammatory ulceration of the cervix and its cavity to exist. . . . .I am therefore fully warranted in looking upon inflammatory disease of the cervix as one of the most frequent causes of this species of sterility. On restoring the uterus to a state of integrity, some of my patients have become pregnant, but many, as yet, have not." (p. 286.)

Another mode of treatment for the removal of sterility has been already for some time before the profession. The dilatation of the contracted cervix proposed by Dr. Mackintosh, and its division by Dr. Simpson, have both been adopted, and in some instances with success. Dr. Bennet has also put this method to the test of experience, but speaks doubtfully of the result. In one instance, having cured a previously existing ulceration, he divided the os internum with Dr. Simpson's metrotome, and the patient became pregnant. But, "on the other hand," he says, "I have, in at least ten or twelve instances, dilated the cervix and divided the os internum in patients cured of inflammation, who have remained sterile. I have never performed this operation on a patient who had not previously suffered from inflammation." Dr. Bennet therefore hesitates to believe that contraction of the os internum is alone a cause of sterility, independently of pre-existing inflammation; and hence it is doubtful how far the mechanical mode of treatment is serviceable, irrespective of the removal of what Dr. Bennet assumes to be its cause, namely, inflammation. Like the philosopher's stone, the removal of barrenness has been most anxiously sought for by the profession, possibly because the desideratum possesses similar auriferous virtues. Dilatation of the cervix uteri, of the os internum, even of the orifice of the Fallopian tube itself, all have been proposed to remove sterility; so, also, retroversion of the uterus has been laid down as the cause of barrenness, and its removal, of course, as the cure. But it is obvious that all these methods of treatment can only be serviceable to a limited extent; just so far, in fact, as conditions of the uterus alone may be the cause of sterility. If, however, we were to compare the two organs chiefly concerned in reproduction, the ovary and the uterus, and ask ourselves in which of them would morbid alterations of structure be the most likely to cause barrenness, the reproductive organ or the temporary nidus of the ovum, we think the reader will not hesitate to say the former; more especially when he recollects those instances of extra-uterine gestation, that prove the activity of the generative organs, notwithstanding the closure of the Fallopian tube—the frequent occurrence of a rigid and unyielding cervix as a cause of delay in parturition—and, above all, the extreme liability of the ovaries themselves to inflammation. Our author has placed clearly before us the influence of inflammation of the uterus in causing sterility; what must be the influence of inflammation of the ovary in producing the same effect? Do we yet know what is the effect of chronic inflammation upon the investing membrane of the ovary, or even upon the peritoneum surrounding it? How far and how often may such a cause as this prevent the influence of the seminal fluid on the ovum; or even, if it should be vivified, arrest its escape from the ovary? These are questions still to be determined, when we would remove the causes of sterility; and should make us cautious in promising a cure too confidently to our anxious patient, to whom the failure of our treatment may prove us to be false prophets, if not something worse.

Abortion, as the result of inflammation of the uterus, we have already sufficiently alluded to, and shall not dwell upon our author's discussion of it.

Uterine displacements, prolapsus, anteversion, retroversion, retroflexion, form a very interesting part of the subject we are now examining. Dr. Bennet sets out with a proposition, which we think he has fully supported: "Prolapsus and all other displacements of the uterus are, according to my experience, nearly always the result of increased volume and weight of some part or other of the organ, produced by inflammatory action or by morbid growths" (p. 291.) Such a cause of prolapsus has certainly not been hitherto stated; and yet in every point it seems to be consistent with truth. The weight of the unimpregnated uterus is very little more than an ounce, which is easily supported by the contractility of the healthy vagina. The round ligaments experience no tension in maintaining it in its position. It would therefore remain perfectly undisturbed in all the motions of the body, if its weight were not increased, if the contractility of the vagina were not lost, and if the round ligaments were not the sole support of the uterus. But when we find the vagina the seat of constant leucorrhœa, the uterus descending through it, and even presenting an ulcerated surface, we cannot but acknowledge the evidences of previous inflammation, and the futility of the explanations usually given of these appearances. Weakness or atony will hardly explain a purulent secretion from the vagina, accompanied by a thickening of the mucous membrane itself; neither will the friction of the protruded cervix be sufficient to satisfy us as to the cause of ulceration. Chronic inflammation must, therefore, be considered as the chief cause of the displacements that are met with. This view of the cause of prolapsus uteri is of the highest practical importance, when its treatment is considered. The reader can readily appreciate the value of pessaries of every variety of form and shape, to remedy chronic inflammation of the uterus; yet such is treatment for prolapsus of the uterus, its common effect.

Retroversion of the cervix sometimes takes place, the hypertrophied cervix being pushed back towards the sacrum, in place of descending through the vagina.

> "The extent to which the retroversion of the uterine neck is carried, depends partly on the degree of hypertrophy, and partly on the length of time that it has existed. When the cervix is very voluminous, has been so for years, and the patient has uninterruptedly been living with her husband, it is often thrust so far back towards the sacrum, that it can scarcely be reached with the finger, and the speculum has, as it were, to search it out of the sacral region. Some of the most difficult instrumental cases I have met with have been of this description." (p. 296.)

This displacement, according to Dr. Bennet, causes no inconvenience, provided that there is no inflammation present; and in support of this view he draws an argument from fibrous tumours. "The history of fibrous growths permits no room for doubt in this question. Those growths almost invariably attain a considerable size, and deeply modify the position of the uterus, giving rise to retroversion or anteversion, and exercising considerable pressure on the pelvic viscera, before they occasion any appreciable symptoms." Hence in the treatment of these displacements, he always considers them merely as a symptom of the inflammatory affection, by the cure of which the displacement is removed.

Retroversion of the uterus had formerly been considered a very rare accident, occurring only during pregnancy, and caused by the greatly increased volume and weight of the gravid uterus. Some accidental cause, a distended bladder, a projectum sacrum, a loaded intestine, was said to prevent the uterus ascending from the pelvis, and to push it back into the hollow of the sacrum. Retroversion of the non-gravid uterus was never heard of until Dr. Simpson first brought it before the notice of the profession, proposing to replace the uterus and to preserve it in its normal situation by a mechanical contrivance called a uterine supporter. Much controversy sprung up about the treatment, but the fact itself was generally admitted. Dr. Rigby, Dr. Protheroe Smith, Mr. Hensley, Mr. Safford Lee, Dr. Beatty, Dr. Joseph Bell, Dr. Oldham, agree that retroversion of the unimpregnated uterus very commonly occurs, although they are not quite so unanimous as to the remedies that are indicated. We may now add Dr. Bennet's name to the list of observers, and we find him also among the dissenters from Dr. Simpson's suggestions.

> "There has been a great tendency of late years to exaggerate the importance of this displacement. The essays of Dr. Simpson himself, although highly practical and interesting, are not free in my opinion, from this reproach. Dr. Simpson has, however, written on the subject with such caution, lucidity, and completeness, and the profession are so greatly indebted to him for the light he has thrown on the pathology of this displacement, that I feel no less pain than diffidence in being compelled to dissent from his opinions." (p. 302.)

Dr. Bennet's chief objection is the misinterpretation of the fact and the attending symptoms; it being asserted that retroversion—

> "Frequently, if not generally, gives rise to all the local, functional, and general symptoms and reactions which I have described as characterising inflammatory affections of the uterus, to engorgement and ulceration of the uterine neck, to chronic inflammation of the ovaries, sterility, &c. &c. These assertions are stated to be founded on clinical facts, but I firmly believe that they are, to a great extent, deduced from facts misunderstood and misinterpreted." (p. 302.)

This displacement Dr. Bennet attributes, and we think correctly in the majority of instances, to partial hypertrophy of the uterus; the size and weight of the posterior wall of the uterus being morbidly increased, and hence the retroversion. Thus after parturition—

> "The process of absorption may take place imperfectly, and leave the entire uterus or the posterior wall or fundus of the uterus enlarged. This not unfrequently occurs when parturition has been followed by uterine inflammation. Local induration and enlargement may also remain in this region as the result of an accidental attack of acute metritis, or inflammatory hypertrophy may extend from the cervix to the posterior wall of the uterus, owing to the anatomical continuity of tissue, which I have elsewhere noticed. In all these cases, in which inflammation is the cause of uterine enlargement, and of the subsequent retroversion, there may be actual inflammation going on when the retroversion is discovered, or the inflammation may have subsided, leaving only hypertrophy behind." (p. 304.)

So the retroverted uterus may have contracted adhesions preventing its return; or morbid growths in its posterior wall may cause it to gravitate towards the sacrum. Dr. Bennet having thus determined the cause of the retroversion, proceeds to consider its effects, and compares the retroversion of inflammation with that which occurs in pregnancy (which he has observed as early as the seventh week), and with retroversion caused by fibrous tumours. He has found a remarkable difference between these cases; especially in the absence of those local and general symptoms in the latter, which are so prominently observed in former cases of retroversion. The facts which he has observed and quoted seem to him to show "that under the influence of pregnancy or tumours, *the uterus may be retroverted to such an extent as to exercise considerable pressure on the rectum, without there being any local or general symptoms;* and that when any indications of the displacement do exist, they are confined to the existence of pelvic weight, dragging, and bearing-down, of a more or less decided character." (p. 307.) Independently of these causes of retroversion, Dr. Bennet also finds that, in the absence of acute or chronic inflammation of the uterus, its displacement will cause neither inconvenience nor discomfort.

> "I have attended a very considerable number of females in whom retroversion of the uterus existed as one of the elements of the disease when they first consulted

me, and who, although they still retain the displacement, are now well, and completely free from all uterine symptoms ; the inflammatory disease of the cervix, of its cavity, or of the body of the uterus, alone having been treated." (p. 308.)

Thus it will be perceived that Dr. Bennet's facts and reasonings resolve themselves into one proposition, viz. that it is the accompany inflammation which causes the distressing symptoms of retroversion ; not the displacement itself. To a certain extent this is undoubtedly true, and of essential importance when the treatment is considered. We have positive proof of the mischief that has arisen from mechanical attempts to cure a retroversion dependent upon inflammation ; but we cannot agree in the truth of the proposition in its entire extent, inasmuch as we have equally certain knowledge that both anteversion and retroversion of the uterus may be purely accidental displacements, causing considerable distress, and alone relieved by mechanical correction of the false position. While we, however, make this statement with some confidence, we cannot but give a willing assent to our author's concluding remarks on this subject.

> " It is certainly of great importance that the real value of these uterine displacements be correctly ascertained, as, should the mechanical school (which is now gaining ground, and which appears to consider the womb as a joint, capable of being dislocated backwards and forwards, to the right and to the left) become generally adopted, there seems no limit to the sufferings that will be inflicted on females by the pernicious application of mechanical principles to the treatment of uterine disease." (p. 309.)

Hysteria and Chlorosis, commonly regarded as functional derangements of the nervous and circulatory systems, we should not expect to find as the result of inflammation of the uterus. Dr. Bennet has, however, met with some examples of hysteria which he believes to have been so produced.

> " I have now under my care," he says, " two ladies, in whom severe ulcerative disease of the cervix brought on convulsive hysteria ; in both, the convulsions were so violent, before the real cause of the disease was discovered by me, as to be followed by partial paralysis of the left side. These cases, however, although so severe, are generally more amenable to treatment than those which occur from less tangible causes ; the hysterical convulsions nearly always ceasing when the neck of the uterus is restored to a state of integrity." (p 310.)

Chlorosis is, however, a much more rare result of such a cause. Dr. Bennet recollects only once having met with such a case, although in the constant habit of treating chlorotic females. "The patient, a young female, aged twenty-two, recently married, was in confirmed chlorosis. As she presented all the symptoms of ulcerative inflammation, I examined her instrumentally, and found well-marked ulceration of the neek of the uterus." (p. 311.) We cannot, however, admit that the two complaints, when thus concurrent, have the least relation of mutual dependence; chlorosis being a constitutional state, which must arise from causes of an entirely different order.

Dr. Bennet next considers *syphilitic ulcerations of the neck of the uterus,* and gives very strong evidence in support of his opinion, "that the real Hunterian chancre is very rarely met with;" but he is not quite so clear in respect to " the non-chancrous-looking ulcerations which complicate the various forms of syphilis." He admits that females, labouring either under blenorrhagic discharges, or under primary, secondary, or tertiary syphilis, very frequently have ulcerations not possessing the Hunterian character. In fact, after a very careful investigation of this question in the Hôpital St. Louis, " to his great surprise, he found that three out of four—perhaps more—(all ?) also presented ulcerations of the cervix." But then the question comes, What was the nature of the ulcerations? Were they syphilitic, modified chancres, or secondary ulcerations? or were they merely inflammatory sores? Dr. Bennet could discover no difference from the ulcerations observed in non-syphilitic patients. M. Gibert, surgeon to the Lourcine Venereal Hospital, makes a manifest distinction. " Out of five hundred patients examined indiscriminately by M. Gibert, the details of whose cases he took down, one hundred and forty-four presented ulcerations of the cervix (érosion granulée). Of the latter, fifteen offered no other morbid symptom; eighteen also presented chancres; twenty-four, condylomata, or mucous tubercles; eleven, buboes; ten consecutive ulcerations of the amygdalæ, mouth, or pharyx; ten, rhagades; six. vegetations; eleven, syphilides; and eight, blenorrhagia." These granular erosions, which are always more or less superficial, rounded in form, limited, having a surface red and granular, contrasting notably with the smooth and polished surface of the normal neck, which bleed easily, and are, generally speaking, covered by a veil of viscous semi-transparent mucous, which flows from the orifice of the neck of the uterus, are considered, by M. Gibert, as a distinct species of syphilitic ulceration. Our author combats this opinion, disputing, with some justice, the propriety of the term granular, " all ulcerations being granular ;" but we do not think that he succeeds equally well on other points. He advances the experiments of M. Ricord, M. Vidal de Cassis, and Mr. Acton, to prove that " inoculation with the *pus* from non-chancrous-looking ulcerations of the cervix, in syphilitic patients, never gave rise to chancres." Our author seems not to be aware that it has been a warmly-disputed question, whether inoculation with *pus*, from any specific sore, can propagate the disease. It is not so with the vaccine pustule, nor with the variolous. The law of morbid poisons seems to require the presence of the specific ichor in the discharge that is secreted, in order to render it infectious; if it become purulent, it has no effect. The validity of M. Ricord's experiments, therefore, has been questioned on this very ground; nor do we think that they can be advanced to disprove the accuracy of M. Gibert's observations. Neither can we admit that the fact that these ulcerations generally gave way easily to the usual treatment, viz. slight cauterization, injections, &c., is any proof that they were not syphilitic; because, in all the cases which have come under Dr. Bennet's notice, the venereal symptoms were treated at the same time as the uterine. Morever, it seems to us a paradox that patients labouring under blenorrhagia, or primary, secondary, or tertiary syphilis, should present ulcerations that are " merely inflammatory." Ricord himself shunned the application of leeches to the cervix uteri of women affected with gonorrhœa, lest every leech-bite should become a chancre. So, also, we almost doubt the possibility of a simple inflammatory ulcer, in a constitution contaminated by the venereal poison. We cannot, therefore, assent to Dr. Bennet's second and third propositions, that—

" 2dly. Ulcerations presenting the character of the (simple, non-syphilitic) inflammatory ulceration are, on the contrary, excessively common in patients labouring under blenorrhagia, or primary, secondary, or tertiary syphilis.

"3dly. Some few of these ulcerations may be primary or secondary, but *the very great* majority are merely inflammatory." (p. 329.)

Dr. Bennet seems to have fixed his attention too closely on the Hunterian, or, as he calls it, the classical chancre, as the evidence of syphilis; and, finding that this ulcer is very rarely met with, he sets aside the variety of ulcers observed in the uterus of syphilitic patients, because they do not possess the legitimate characters of chancre. We regret this the more, because nothing is more desirable than to determine and describe those ulcerations that depend upon syphilis, and to distinguish them from such as are purely inflammatory. We believe not only, with M. Gibert, that there are erosions, but several other varieties of ulceration on the neck of the womb, which have not been described, and are the result of syphilis. Ricord has observed fungous ulcerations of the cervix in gonorrhœal patients; we believe also that well-defined, patchy excoriations are not unfrequent, and even serpiginous lines of ulceration, in those affected with syphilis. It is highly important that an accurate observation of the different forms of ulceration should be made, in order to avoid the error to which those who have paid attention to the subject seem to incline; either in attributing *all* these ulcerations more or less to a specific cause, or, like our author, to consider them, even when accompanied by sypilitic symptoms, as being "merely inflammatory."

Dr. Bennet's next chapter is devoted to the consideration of Cancer and its diagnosis. He combats the opinions of Sir Charles Clarke, Dr. Ashwell, and Dr. Montgomery, with regard to the first stage of the disease; conceiving that, in their descriptions, they have confounded the induration of the cervix from inflammation, with cancer. He believes that incipient cancer very seldom falls under the notice of the physician, because "it is always indolent, and gives rise to no symptoms sufficiently decided to induce patients to complain or to seek for advice." Dr. Bennet's views on this subject are certainly new; how far they may be true we shall not now discuss, but would rather refer our readers to the work itself for a lengthened and careful examination of the question. We have the less hesitation in doing so, as the subject itself is rather a digression from that which is properly before us; and the length to which this notice has extended will not admit of digressions. We must again caution them, however, against the tendency to exclusiveness in Dr. Bennet's system of Uterine Pathology, which makes almost every uterine malady resolve itself into inflammation.

We prefer hastening to the consideration of *the Treatment* of inflammation of the womb and its consequences. Dr. Bennet first points out the treatment of simple inflammation of the neck of the womb; then of ulceration; and lastly, of ulceration with hypertrophy. "On glancing over the above enumeration of the local means of treatment in simple inflammation of the neck of the uterus, and of its cavity, it will be seen that they consist principally in vaginal injections, hip-baths, local depletion, and the use of caustics." With regard to injections, Dr. Bennet has found cold water extremely useful as a powerful tonic and astringent; and states that it may be used with great benefit when the inflammation has been subdued. Of medical astringents, after many experimental essays, he has arrived at the conclusion "that alum is by far the most efficacious of all these agents, with the exception of nitrate of silver." He uses it in the proportion of a drachm to a pint. Injections alone Dr. Bennet has found powerless to subdue *confirmed* inflammation of the substance of the cervix, or of the mucous membrane by which the cavity is lined; but he has found them most useful in inflammations of a lesser degree.

> "Not only is it possible to treat successfully non-ulcerated inflammation of the cervix, *when slight*, and of recent date, merely by emollient and astringent injections, rest, and attention to the general health, without having recourse to instrumental examination, or to means of treatment requiring instrumental interference, but even slight ulcerations, unaccompanied by general inflammatory hypertrophy, will sometimes give way under the influence of these means." (p. 380.)

Much, however, of the success of this mode of treatment depends upon the manner in which it is carried out, and it is very clear that unless particular attention be paid to explain the proper mode of using injections, in nine cases out of ten they will be perfectly useless.

> "In order to derive full benefit from vaginal injections, they must be properly and efficiently used: and this is never the case unless the patient be previously instructed how to proceed. When a fluid is injected into the vagina, the patient being in a stooping position, not only does it at once escape from the parts, but it rarely reaches the cervix or the upper part of the vagina. For this to be ensured, she should lie horizontally on her back, on the bed, on the sofa, or the floor, with the pelvis slightly elevated, so that the fluid may gravitate towards the internal structures. The natural contractility of the vagina expels the water, it is true, but not until it has well washed the entire vagina. A small quantity of the injection often remains imprisoned, as it were, in the superior cul-de-sac of the vagina, in the vicinity of the cervix, until the patient rises, when its own weight brings it away. .... The best instrument for vaginal injections is a pump-syringe, with a six-inch elastic vaginal tube adapted to the longer tube, and presenting at its extremity four or six small holes in the sides as well as at the end. The vaginal tube can, after introduction, be directed to the region of the vagina where the cervix lies, and *any* quantity of fluid can be injected without its being withdrawn." (pp. 381-2.)

Local depletion equally illustrates the importance of attention to what are generally considered the minor details of treatment. The application of leeches to the uterus is not a new practice, but this duty is usually committed to nurses. "It is too much the custom," Dr. Bennet observes, "to prescribe 'a course of leeching' as they would 'a course of medicine;' giving directions for leeches to be applied once or twice a week, for one, two, or more months, without ascertaining whether the continuance of depletion is necessary or not." These directions are given to the nurse, who is generally sufficiently intelligent to apply them within the vagina, but no more; hence the inflamed surface is generally omitted; and in order to obtain indirect relief, a larger quantity of blood is drawn from the vagina than is at all necessary. Besides this, the patient may be most unnecessarily exposed to a considerable amount of pain, because "the external surface of the cervix has very little sensibility, and when the leeches fix on it the patient experiences little or no pain. Generally speaking, indeed, she is only aware of their presence from the dragging sensation to which suction gives rise in the course of a few minutes. The cavity of the cervix, on the contrary, is *acutely sensitive*, and if a leech fixes in it, the patient may experience most agonizing pain." (p. 391.) We quite agree, therefore, with Dr. Bennet that this is a duty which should not be intrusted to a deputy. "In reality, it is very desirable that the practitioner should apply the leeches himself, if he can possibly afford leisure. The time employed need not be long, and he is thereby able to form an opinion on many points which will guide him as to their repetition, besides having an opportunity of making a very careful examination of the uterine organs." It is of the utmost importance that local depletion should be performed efficiently, and the greatest effect produced by the least loss of blood; and frequent applications of leeches are highly detrimental, not only giving imperfect relief, but sometimes actually increasing the evil they were intended to remedy. "The application of leeches," says Dr. Bennet, "every week, or twice a week, for a lengthened period, appears to me sometimes to keep up a local congestion; thus tending rather to increase than to diminish the nutritive hypertrophy of the cervix and uterus, to which chronic inflammation gives rise." We fully accord our assent to this remark; as we believe every practitioner conversant with female complaints will do, when he recollects how temporary is the relief after successive depletions, and how often the returning pains are increased in severity. Local depletion is, indeed, too frequently of partial efficacy, and gives only temporary relief without curing the disease. *Cauterization* of the inflamed or ulcerated surface is essentially a new and most important principle in the treatment of these cases, and is that which has led to the greatest improvements in practice. But we also feel persuaded that it is that which may be the most easily abused, and may do mischief in proportion to its great power. Our author's observations on cauterization are most valuable; but none are more so than the cautions which he gives his readers, as to its occasional effect and its danger.

> "It cannot be denied that cauterization of the cervix, as above described, and especially deep cauterization, is *an operation*; and like all operations, surrounded with danger. It must not, therefore, be either injudiciously resorted to, or carelessly carried out. Although my own practice has hitherto been free, or all but free, from serious accidents, the same immunity cannot always be expected. Indeed I recently learned from M. Gendrin, that within the last few years he has had several cases of acute metritis, and of abscess in the lateral ligaments, the evident and immediate result of deep cauterization. But he also tells me he has seen the same results follow the use of nitrate of silver, and of injections; and I may mention that the two most severe instances of acute metritis that I have myself witnessed for some time, in the unimpregnated womb, occurred after the use of weak astringent vaginal injections." (p. 426.)

While, therefore, this mode of treatment stands first on the list of remedies, because of its efficiency, it is also the most hazardous if incautiously employed; and requires, on the part of the practitioner, the most watchful attention, both as to the manner of using it, and to its subsequent effects, in order to render it perfectly successful. The caustics used are of various degrees of strength; nitrate of silver, pernitrate of mercury, nitric acid, potassa cum calce, potassa fusa, the actual cautery,—all these have been employed to heal ulcers of the neck of the womb.

> "The only caustic," our author observes, "that can be used with advantage in inflammation of the cervix, without ulceration or hypertrophy, is the nitrate of silver; which acts, however, more as an astringent than as a caustic. The solid nitrate of silver, or a strong solution, should be applied every three, four, or five days, to the inflamed mucous membrane covering the cervix. This is also the mode

of treatment to which I have principally recourse, in the first instance, in inflammation of the cavity of the uterine neck, carrying the caustic into the cervical cavity, as far as it will pass." (p. 393.)

When inflammation is accompanied with ulceration and hypertrophy, nitrate of silver may still be used; but, in Dr. Bennet's opinion, more powerful cauterization is often necessary.

> "Ulceration existing on the cervix uteri, or within the cervical cavity, has a remarkable tendency to perpetuate itself indefinitely, notwithstanding the subdual of all acute or subacute inflammatory action. This tendency is, no doubt, increased by the periodical sanguineous congestion, to which menstruation physiologically exposes the inflamed tissues. Should it not yield (and it seldom does) to antiphlogistic means directed as above, the most efficacious treatment, indeed the only one that can be depended upon, is by direct stimulation of the diseased and ulcerated surface, to modify its vitality in such a manner as to induce a healthy action, and finally cicatrization. This end is obtained by the use of caustics of varied strength, according to the nature and extent of the disease, its chronicity, and the effects obtained. In the application of these two principles resides the entire theory of the treatment of ulcerative inflammation, not only in the neck of the uterus, but in any other part of the economy. We must first subdue acute inflammatory action by emollients, depletion, and astringents; and then modify by direct stimulation the diseased surface, so as to substitute healthy reparative inflammation for morbid ulcerative inflammation." (p. 396.)

Such are the principles of cauterization. Nitrate of silver is the least energetic of the caustics; the eschar is superficial, thrown off about the fourth day, and leaving a red, irritable, bleeding surface, which disappears on the fifth, when a more healthy ulceration may be observed. "When a solution of nitrate of silver is used, these effects are obtained in a shorter space of time, and it may consequently be applied at shorter intervals than every fifth or sixth day, the period which should be allowed to elapse between the applications of the solid nitrate." (p. 399.) This caustic has also the advantage of greater security, in consequence of its more limited cauterizing power; and so far from doing injury to the surrounding tissues, if it runs on and touches them, it acts on them beneficially as a powerful astringent, if they are at all inflamed. Nitrate of silver applied to the cervix externally causes no pain; but this is not the case when applied to the cavity of the cervix; nevertheless, although painful, it is not by any means so severe as a leech-bite. Nitrate of silver may also be used as subsidiary to the more powerful caustics, which can only be applied at more lengthened intervals—

> "To rouse and modify more energetically the vitality of the diseased surface; and it is by the nitrate of silver, that the new action thus created should be moderated and guided. Its occasional employment serves as a dressing to the ulcerated surface, prevents its becoming irritable and unhealthy, keeps down granulations, and thus powerfully assists in bringing about cicatrization." (p. 402.)

Of the acid-caustics, Dr. Bennet prefers the penitrate of mercury, but cautions his readers against any carelessness in its application. "I have repeatedly seen," he says, "considerable temporary mischief occasioned by practitioners who were acting under my directions, the caustic having been allowed to run on the cervix and vagina, and thus produce extensive inflammation and ulceration." (p. 406.) This is rather an objection to its use, besides that, although more powerful than nitrate of silver, its beneficial effect is still limited; "the ulceration heals to a certain point, and then cicatrization comes to a standstill." A more powerful caustic is therefore necessary, and this is supplied by potassa fusa. The application of potassa fusa to the treatment of intractable ulcerations of the neck of the uterus, and of chronic inflammatory hypertrophy of the cervix, is due to M. Gendrin, the eminent Paris physician; under him Dr. Bennet learned the value of this agent in controlling intractable ulcers. The rapid deliquescence of potassa fusa became, however, as great an objection, if not greater, to its use, than that of penitrate of mercury. To meet this difficulty the Vienna paste, potassa cum calce, was used; but the mode of its application as a paste was attended with many inconveniences. Dr. Bennet varied in different ways its application; and after much pains has, at length succeeded in obtaining a preparation that is easily and as safely applied as nitrate of silver:

> "In the last year or two, however, I have not once used either the Vienna paste or the pure hydrate of potash. I now always substitute cylinders of potassa cum calce, which, with the assistance of Mr. Squire, of Oxford street, I have succeeded in obtaining similar to those of nitrate of silver in ordinary use. M. Fihlos, of Paris appears to have been the first to discover, some ten or twelve years ago, that it was possible to fuse potassa and lime in variable proportions, and to run the preparation into solid lead tubes. Not finding M. Fihlos's first tubes of fused potass and lime by any means as energetic or as efficacious as the Vienna paste or the hydrate of potass, I long used them only for superficial cauterization. Some time ago, however, having received several from Paris, which were much more powerful, the proportions of potassa being greater,—two of potassa to one of lime,—I requested Mr. Squire to fuse these substances for me in the above proportions, and to run them into soft metal tubes. The fluid potassa invariably melting the tubes, we determined to have iron moulds of various sizes made, and to run it into these. I have thus obtained cylinders of potassa cum calce, which can be used with the greatest care, and with perfect freedom from risk, owing to their not fusing as pure potassa does, *although quite as powerful in the effects they produce as is the latter substance itself.*" (p. 412.)

This improved method of applying this powerful caustic, removes many of the objections to its use, and enables the practitioner to have the full benefit of potassa fusa with considerably diminished risk. Potasta fusa may be used either to modify the vitality of a diseased surface, in which case it is applied only for a few seconds; or to form an eschar of greater or less depth, when it must be applied for a longer time. "Severe cauterization should never be resorted to within less than twelve or fourteen days of the menstrual epoch, which it often slightly accelerates." (p. 415.) The eschar disappears in about fourteen days, and the ulcer heals about the fortieth day; but if not, "the influence of the strong potassa-cauterization being exhausted, it must either be repeated, or the treatment must be carried on with the milder caustics, if it is thought that they alone will suffice." Another mode of accomplishing the same object has been proposed and practised by M. Jobert. *The actual cautery* is generally used by M. Jobert in preference to caustic potass, because there is no risk of the eschar spreading, and the depth of the eschar can be more rigorously measured. To both these objections Dr. Bennet gives "the most decided negative from lengthened experience," and enters into an examination of the comparative merits of each method of cauterization, giving a strong preference to the application of potassa fusa. We feel assured that the profession will arrive at the same conclusion, when they examine the facts adduced;

and most willingly do we agree with Dr. Bennet in another objection to the actual cautery, that must be the seal against it. "There is certainly something very alarming to the imagination in the application of the actual cautery to any part of the body; and the fear it occasions is not diminished by the noise and odour which the combustion occasions." Let our readers imagine a delicate female worn out with protracted ulceration, and having a high degree of nervous irritability, a witness of the preliminaries to her cure by the actual cautery: the small furnace, the heated irons, and then the application, "the noise and the odour the combustion occasions." If they can realize such a scene, a very little reflection is required to convince them that such a mode of treatment should never be used except as a *denier ressort*, there being no other means of accomplishing the same purpose. Our author has happily proved that there is; and consequently this heroic method of treatment may be dispensed with because it is unnecessary. Dr. Bennet's observations on the treatment of hypertrophy and induration by cauterization are worthy of close attention. He very properly objects to the tedious and inefficient process of treating such a condition of the cervix by local depletions and local applications of iodine and mercurials. Their internal administration is of still less use, "I should myself as soon think of giving mercury and iodine to remove this chronic enlargement of the tonsils, as to remove hypertrophy confined to the neck of the uterus." Such a condition can only be removed by cauterization, which is prompt and efficacious, and which Dr. Bennet has never found to fail. We are happy also to perceive that he cautions his readers against a misinterpretation of his views on this point; a mistake which we confess we almost fell into, when we read of the "melting influence of deep cauterization with potassa or the actual cautery." Knowing that it was the practice with some practitioners to use potassa fusa very freely, to reduce the hypertrophied cervix into shape—to melt it down, in fact, pretty much after the manner of a candle-end, with the cautery,—we feared Dr. Bennet was leading us into similar views of treatment, but we very happily found ourselves deceived.

> "I wish it," says our author, "to be distinctly understood, that *I do not propose to destroy the hypertrophied cervix* by cauterization, but merely to set up an artificial eliminatory inflammation by means of an eschar or issue, of limited extent, established in the centre of the hypertrophied region. . . . Any attempt to actually destroy the hypertrophy, by direct cauterization, appears to me both dangerous and unnecessary;—dangerous, because I should be afraid that the intensity of the reactional inflammation would be so great, as often to extend to the uterus or to the lateral ligaments, and because I consider it impossible always to limit the action of the caustic when applied with such profusion;—unnecessary, because a mere eschar, the size of a shilling, will equally well answer the purpose of reducing the hypertrophy." (p. 431.)

We believe that Dr. Bennet's views on this point are consistent with truth and with reason. *Amputation of the hypertrophied cervix* is equally condemned by our author, as being both dangerous from hemorrhage, and ineffectual, because it is impossible to remove the entire extent of the hypertrophy, "which is usually connected by a large base, and what remains generally soon assumes as great a development as before."

The displacements of the womb which are the result of inflammation, give rise to some highly practical observations, especially in reference to pessaries and other mechanical contrivances intended to correct them. The treatment of acute, chronic, and internal metritis, as well as inflammation and abscess of the uterine appendages, is well discussed. The work concludes with an Appendix, containing a synopsis of three hundred cases, and some useful observations on "the physical examination of the uterus and its appendages." The inefficiency of the finger alone to discover ulceration of the womb is strongly pointed out; which gives occasion to some stringent and, we confess, just remarks on the absurdities of some of Dr. Bennet's professional brethren with regard to the speculum. Dr. Bennet quotes cases to illustrate the mistakes that have been committed by trusting too much to the so-called *tactus eruditus*, and by opposing the use of the speculum. Although we cannot altogether approve of the manner in which these cases are narrated, we can quite enter into Dr. Bennet's feelings, when he is met by objections that have no other foundation than mere prejudice. It is certainly deeply to be regretted that such should exist; and still more, that they should take much deeper root with the medical profession than even with the public. A profession that boasts itself as resting on the foundation of science, that claims fraternity with other scientific professions, should be above prejudice; but, unfortunately for medicine, its professors are peculiarly susceptible of this weakness; and from the days of Harvey and Jenner, down to our own time, every improvement and every new fact has been so assailed. Our author, however, need not fear that, in the present enlightened age, such prejudices can long resist the truth. We do not think that, like Harvey, he will find his practice gradually falling off; nor that, like Jenner, he must seek the retirement of a country life to avoid the tempest he has raised. A few may still oppose; but the majority will follow. Our only fear is, that they may do so rather too blindly. Nay, we can almost fancy, without any great stretch of imagination, those very gentlemen, who possess such magical fingers as to render the speculum unnecessary, changing their opinions, and actually embracing with those very digits the instrument they so strongly repudiated. *The speculum* preferred by Dr. Bennet is the bivalve, because by its means the cavity of the cervix can be so much better exposed than by any other. He admits, however, that it requires much more skill and habit on the part of the operator, than the conical or cylindrical one. The bulging of the vagina between the blades of the speculum, when it is opened, is also an objection; but this has been in some degree removed, by combining the cylinder and bivalve in one speculum, as has been done by Mr. Coxeter, the instrument maker. We believe that the speculum is not very unlike the obstetric forceps in its improvements; every one has his favorite; and whether it be the cylinder or the cone, the bivalve or quadrivalve, the fixed or the expanding speculum, each finds an advocate in the practitioner best accustomed to the instrument proposed. Dr. Bennet uses the bivalve, to the exclusion of all the rest. Others do the same with Ferguson's speculum and the conical speculum. We think all may err in adhering too closely to one instrument; we are quite satisfied that each speculum is useful in its way, and one is more applicable in the examination of particular cases than another. Dr. Bennet prefers the examination to be made when the patient is lying on her back rather than the side, and he "always prefers daylight, if possible, although artificial light may be made to answer the purpose."

We can fully confirm his correctness on both these points. The examination on the side, although more generally used in these countries, is sometimes very inconvenient, and often renders the examination much more imperfect than it ought to be. The objection to Dr. Bennet's mode, its indelicacy, is very easily removed; because it may be made without one iota more exposure of the patient than when lying on her side. The full light of day is also far preferable to the imperfect illumination of a taper. This may best be understood by the surgeon who is in the habit of examining ulcers of the leg. Will the light of a candle give him the same amount of information as to the appearances of the ulcer, as the broad daylight? We think not. Neither will the light of a taper, although aided by a reflector, assist him in discovering and appreciating changes in an ulcer on the neck of the womb, as perfectly as daylight.

The length of our analysis of Dr. Bennet's work, and the general tone of our commentary, will have afforded to our readers sufficient evidence of our high estimation of it. It throws a new light on diseases hitherto treated without any knowledge of their real character; and opens forth to us a subject almost totally neglected by preceding writers. In pointing out the frequency of inflammation of the womb, its various consequences, and the protracted suffering to which it gives rise, we consider that Dr. Bennet has done great service to the profession. We could have sometimes wished that our author had more strongly impressed upon his readers the importance of caution in the treatment of these diseases. In the hands of Dr. Bennet, cauterization of the uterus may be always safe. Is it so in the hands of others? He has given us evidence that it is not so, at least with pernitrate of mercury; and it may be the same with other caustics. We could wish, therefore, that the dangers of cauterization had been put more prominently forward as a lesion to guard the incautious practitioner,—to teach him that he is meddling with edged tools, when he is using the portecaustique, and may do infinite mischief. Such a lesson would render his work complete. The lessons it does contain, however, are invaluable; and we feel assured that they ought to be perused and studied by every practitioner who would venture on the treatment of female complaints. We should be sorry, however, to see the profession blindly adopting our author's pathological or therapeutic views. We believe (as we have already hinted) that, like most other enthusiasts, he occasionally rides his hobby too hard; and that there is too great a disposition in his mind to view every uterine malady as in some way or other of inflammatory origin, and to treat every inflammatory affection after his somewhat heroic fashion. "A little knowledge" is here a peculiarly "dangerous thing;" and we foresee as much mischief from the rash and uncalled-for application of caustics, as we have already had occasion to expose in regard to mechanical methods of treatment. In fact, we know that some of our leading obstetric physicians have already been consulted in cases of this kind; and we anticipate that they will vastly increase in frequency. We wish that some of those whose names carry most weight with the profession, would solemnly record their warnings on this matter, as Dr. Oldham has so properly done in regard to mechanical dilatation (see p. 83). We can assure them that their voices would be most strenuously echoed by our own.

Art. VII.

The Microscopic Anatomy of the Human Body in Health and Disease. Illustrated with numerous Drawings in Colour. By Arthur Hill Hassall, M.B., M.R.C.S., F.L.S., &c. In Two Volumes.—*London*, 1849. 8vo, pp. 570. With Sixty-nine Plates.

Our readers, we should hope, are quite prepared to agree with us in the opinion, that the growing importance of the study of Microscopic Anatomy, both normal and abnormal, has for some time rendered it most desirable that an accurate series of delineations of the minute structure of the several component elements of the human body should be accessible to every inquirer. Such an Atlas, if thoroughly well executed, would prove a most valuable guide to those who might desire to make themselves practically acquainted with the appearances it should represent; whilst it would furnish to any one who wants time, eyesight, or inclination for microscopic study, the best substitute the case admits of,—namely, such a pictorial representation of the objects, seen by other eyes, and interpreted by other minds, as may enable him to see with their eyes, and to appreciate the ideas which the sight of the actual objects has led them to entertain of their nature. There is not here, perhaps, the same difference between a thoroughly well-executed delineation and the actual object, which exists in what we may term naked-eye anatomy. While we stedfastly set our faces against the notion, that the student can ever gain, without actual dissection, such a correct idea of the structure and relations of the different organs of the body, as is necessary for the practitioner of any department of medicine, we yet think that it would not be difficult to show that a considerable amount of valuable knowledge of Microscopic Anatomy may be obtained from plates alone; and that the student who has learned all he can from trustworthy delineations, and who consequently knows somewhat of *what he is to see*, will go to the microscope with an immense advantage over him who has acquired no such previous information.

But the amount of such advantage must entirely depend upon the confidence which can be placed in the infidelity of these pictorial representations: and this, again, must be governed by our previous acquaintance with the qualifications of the individual under whose direction they are produced; or by the judgment of those, whose familiarity with the objects represented, and whose scientific acquaintance with physiology and minute anatomy, give to their verdict the best claim to general reception.

Dr. Hassall comes before us with certain claims on our favourable consideration, founded on his work on the 'British Fresh-water Algæ;' this work, however, though creditable to his industry and zeal, by no means established his title to the character of a first-rate microscopic observer. But, although we consider it a great advantage for the histologist, to have acquired from the study of the Vegetable tissues all that they can teach him of the development, actions, and transformations of the cells which modern microscopy has shown to be the fundamental or primary components of animal in common with vegetable organisms; yet it does not follow that an observer who has thoroughly familiarised himself with every appearance presented by the vegetable tissues, should be competent at once to instruct the world in regard to the much more varied and extensive range of phenomena which present themselves to the inquirer into the minute structure of the Animal body. For, as our readers must be well aware, there are scarcely any tissues in the animal which admit of direct comparison with those of the plant; the greater number are essentially different; and the combinations under which these elementary parts of animals present themselves, are more complicated, and far more difficult of satisfactory analysis, than at the mere aggregations of cells, woody fibres, and ducts, which are met with even in the most complex vegetable fabric.—Now, as nothing that Dr. Hassall had given to the world, subsequently to the publication of his 'Fresh-water Algæ,' had indicated that he had been directing his attention to the microscopic Anatomy of the Human Body," we felt some misgivings, when we saw the announcement of the work before us, lest the author had ventured out of his depth, and had been premature, to say the least, in coming before the public, not merely as an instructor, but also as a corrector of the errors of other men, in regard to matters with which he himself was very imperfectly conversant. These misgivings were not removed by an inspection of the first-published parts of Dr. Hassall's work; for we found in them just the faults which we had been prepared to expect,—namely, a very imperfect acquaintance with the general state of opinion among microscopists on many important topics, and a too great confidence in his own judgment when opposed to that of men of more experience as observers, and of higher qualifications as interpreters of what they observe. We are bound to say, however, that in many respects the character of the work has improved as it proceeded. It is evident to us, that the author soon began to feel his own deficiencies, and that he sought for assistance among some of those most competent to give it, and we believe that it is to the ready kindness with which this has been accorded to him, that the value which his work unquestionably possesses is chiefly owing.

There are many circumstances which would dispose us to look with a lenient eye upon the faults of Dr. Hassall's work, and to say as much as we honestly could in its favour. It is the first attempt which has been made in this country, to embody in a separate treatise the results of the labours of the large body of observers, who have contributed in a greater or less degree, to the advancement of the science; its claims to friendly consideration on that account, however, being manifestly dependent upon the fidelity of the accounts which it gives of their researches, and the extent of the information which it displays respecting them. So, again, as it is the first attempt which has, we believe, been anywhere made, to place in the hands of the public a complete series of *coloured* delineations of the various component elements of the human body, much allowance should be made for a want of that perfection in the delineations, more especially as regards their colour, which we are now accustomed to expect in illustrated works. Further, we regret to learn from Dr. Hassall, that the work has been produced, not only in the midst of constant engagement in general practice (which we cannot admit as a valid excuse for the deficiencies of a treatise, that had better not have been undertaken at all, if the author's other pursuits were so completely alien to its subject), but also under circumstances of "much anxiety, and, though last not least, ill-health." "It cannot be questioned," he says, "but that they have operated in some respects to the disadvantage of the work;" and he begs that it may be taken neither as the measure of that of which the subject is capable, nor of the author's powers of observation and description, exercised under more favorable circumstances of health, leisure, and feeling. It appears from this statement, that Dr. Hassall does not regard his production as faultless; and we should think, therefore, that he cannot but regret that it should have been extolled by partial friends as, in every respect, a safe and sufficient guide to the student of microscopic anatomy. Such indiscriminate laudation is the next worst thing to indiscriminate abuse; that it should favour the sale of a book which will most assuredly disappoint any one competent to estimate its merits, who may purchase it on the faith of such statements, is perhaps the least of the evils which flow from such an extravagant estimation; for its influence on the minds of the uninformed must be to lead them to place such implicit confidence in Dr. Hassall and his plates, that everything must be wrong, in their apprehension, which is not seen as *he* sees it, and everything right which *he* has sanctioned. On this account, we feel called upon to enter rather more at length into an examination of Dr Hassall's claims as an authority, where he differs, or seems to differ from other microscopists, than we should have otherwise thought necessary. In doing so, we are influenced by no desire to depreciate his merits or those of his work; but, as he has not hesitated to call in question, upon most insufficient grounds, the statements of much older and more experienced microscopists than himself, he has no right to complain of being himself put upon his trial before a critical tribunal, which claims at least as much right to estimate *his* merits, as *he* has assumed in regard to those of his predecessors and fellow-labourers. We are not about to inflict upon our readers, however, a discussion of all the points wherein we think Dr. Hassall's own observations unsatisfactory, or his comments on the researches of others erroneous. A few specimens, relating to some of the topics of most importance, will be amply sufficient.

The Red Corpuscle of human blood is at first spoken of by Dr. Hassall (as by every one else) as a cell or vesicle; and is said (p. 25) "like all minute vesicles, to possess the properties of endosmosis and exosmosis." The *actions* of endosmosis and exosmosis, here termed *properties*, are in the next sentence designated as *principles*, and are said to "depend for their operation upon the relative density of two fluids, the one external to the vesicle, the other internal;" so that here Dr. Hassall fully recognises the distinction between the cell-wall and the contained fluid. So, again, in his explanation of fig. 4, plate ii, he speaks of the "membranous capsular portion of the red corpuscles of frog's blood." Further on, however, we are startled by the following statement.

> "Some observers have compared it (the red corpuscle) to a vesicle. This definition does not seem to be altogether satisfactory; for although each corpuscle possesses the endosmotic properties common to a vesicle, no membrane, apart from the general substance of the globule (I speak more particularly of the human blood-disc), has been demonstrated as belonging to it. Each globule in man may therefore be defined to be an organism of a definite form and homogeneous structure, composed chiefly of the protein-compound *globuline*, which resembles albumen very closely in its properties; its substance externally being more dense than internally, it being endowed with great plastic properties, and finally being the seat of the red colouring matter of the blood." (p. 31.)

Further on we are told that—

> "The *hæmatine*, or colouring matter of the blood, seems in the red corpuscle of the mammalia to be diffused generally throughout its substance; in the oviparous vertebrata, however, it is confined to that portion of each corpuscle which corresponds with the blood-disc of the mammiferous vertebrata, viz. the outer or capsular portion of it, the nucleus, which alone exists in the blood-corpuscles of birds, fishes, and reptiles, being entirely destitute of colouring matter." (p. 34.)

If we understand the meaning of these extracts aright, Dr. Hassall here denies the distinction between cell-wall and cell-contents in the human blood-corpuscles; and maintains that the whole body is nothing else than a homogeneous particle of *globuline*, tinged throughout with *hæmatine*. As to his grounds for his extraordinary assertion, and for his denial of the vesicular character attributed by every other observer to the human blood-disc, in common with that of the lower vertebrata, Dr. Hassall leaves us entirely in the dark. If he will only take the trouble, however, to diffuse some blood through water, he will find that after a short time the blood-corpuscles will not merely be rendered *globular* by endosmosis (a fact of which he seems to be aware, although he speaks of this change as rendering them *circular*, as if they were not so before), but after a short time they will *burst*, the colouring matter being then diffused through the water, whilst the colourless cell-walls sink to the bottom,—a proof, we should think, of their vesicular nature, amply sufficient to satisfy Dr. Hassall's doubts.

In discussing the uses of the white corpuscles, Dr. Hassall devotes a considerable space to the exposition of Dr. Addison's notions, which he not unjustly treats as purely hypothetical. In the course of the discussion, however, he hazards the extraordinary assertion that "the cells of the liver and spleen resemble closely in appearance the white corpuscles of the blood" (p. 49, *note*); though he adds, "well-marked differences exist between them, so that it is by no means to be inferred that the former are directly derived from the latter." Now although we readily admit that a certain resemblance exists between *some* of the splenic cells (of which there are several orders) and the white or colourless corpuscles of the blood, we cannot see the remotest resemblance between either of these and the *hepatic* cells; nor, we venture to affirm, can any other microscopist who knows "how to observe," and can appreciate marks of difference as well as points of resemblance. Such statements, at the outset of such a treatise, are by no means fitted to inspire confidence in Dr. Hassall's qualifications as a legislator for microscopic anatomists.

More than a hundred pages of text, and no fewer than ten plates containing forty-three figures, are devoted to the Blood; the author having thought it necessary to describe the chemical and physical properties of this fluid, and to delineate not merely the several varieties presented by the constituents of human blood in different conditions, but a considerable number of specimens of the blood-discs and blood-vessels of other animals. Now we do not see what right the physiological and pathological chemistry of the blood have to so prominent a place in a work on microscopic anatomy; any more than the microscopy of the blood could claim such a place in Dr. Simon's or any other treatise on Animal Chemistry. It is not as if Dr. Hassall had any original researches to communicate; the introduction of such might have been excused; but page after page is filled with matter derived from such well-known sources as Andral and Gavarret, Becquerel and Rodier; whilst the researches of many other trustworthy observers, less accessible to the English reader, are left altogether unnoticed. The whole of this portion of the work we have no hesitation in characterising as, notwithstanding its amplitude, a very imperfect account of the microscopy and chemistry of the blood; containing not a single new fact of any value as the fruit of the author's own inquiries, and giving a very imperfect account of the observations and conclusions of others. The degree in which Dr. Hassall was gathering that information as he proceeded, which he ought to have collected before commencing his work, is amusingly shown by the following circumstance. At p. 62 we have a section headed "The end or final condition of the red globules," in which he comes, on theoretical grounds merely, to the conclusion that, "having performed the important function of carriers of oxygen from the lungs throughout the system, and of carbon (!) from the latter back again to the lungs, they become dissolved, increasing by their dissolution the amount of fluid fibrin circulating in the blood, and which is deemed to be the true *blastema.*" (p. 64.) A few pages further on, however, we find another section (which formed part of the succeeding Number in the original issue) headed "dissolution of blood-corpuscles;" in which Dr. Hassall returns to the subject, in order to put forth as a new observation, the occurrence, in the blood of oviparous vertebrata, of a number of pale corpuscles, of various sizes, the larger ones oval and slightly coloured, the smaller ones colourless and mostly spherical, and some looking like free nuclei; these he regards as representing "progressive stages of the dissolution of the red blood-disc," although he admits that when first he noticed them, he "was disposed to think that they represented stages in the upward development of the red blood-disc." Now these are the very bodies, occurring not only in the blood of oviparous vertebrata, but also in that of man, which have been noticed by one observer after another, and have been commonly considered as transitional forms between the colourless and the red corpuscle; a doctrine of which Dr. Hassall takes no notice, except to negative the very slight and unsatisfactory arguments advanced in its behalf by Donné. Having settled to his own satisfaction that the red corpuscles end by melting down into plasma,—though he nowhere tells us how either the *globuline* (an *albuminous* substance very soluble in water, forming a granular coagulum by heat) or the *hæmatine* (a substance of altogether different chemical composition) become converted into the spontaneously fibrillating substance which we term *fibrine,*—he gives us the following account of their *origin :*

> "Observation has convinced me that the development of blood-corpuscles is not assigned to any particular organ of the body, but that it occurs within the blood-vessels during the whole course of the circulation and life. During the first formation of the blood in early embryonic life, the corpuscles are said to be formed in the cells, which, by their union with each other, give origin to the capillary vessels. Further, it is probable that, while it is in arterial blood that the work of development of blood-corpuscles is most active, it is in the venous fluids that the converse work of dissolution is mainly effected. The development of blood-corpuscles is also most active in early life, when growth is rapid, and it is likewise more active than ordinary in adult existence, after hemorrhages, and in persons of the plethoric diatheses. In like manner it may be presumed that the dissolution of red blood-corpuscles proceeds more quickly in anæmic conditions of the system, and in old age;

while at the same time, at the latter period, development of new corpuscles is more tardy." (p. 80.)

This is all the information that we can find on the development and dissolution of the red corpuscles, in the hundred pages given by the author to the subject of the blood. Can anything be more meagre and unsatisfactory? Of the first origin of the blood-corpuscles in the embryo, Dr. Hassall can only tell us that "it is said" that they are formed in the cells which unite to give origin to the capillary vessels; and of their subsequent production he informs us merely that observation has convinced him that they are developed in the course of the circulation, rather than in any particular organ (what modern microscopist has taught the contrary? but without informing us whence they spring; and then he winds up with the following camplacent remark, which confesses that, little as he knows now, he knew still less when he came forward to instruct the world on the subject.

> "It is now hoped that a more satisfactory explanation of the *origin* and *end* of the red blood-disc has been given than, it was feared, when the writer first approached the consideration of these difficult, though most important questions, it would have been in his power to have afforded." (p. 80.)

Those who are "satisfied" with Dr. Hassall's "explanations," must have an appetite so marvellously small as to delight the soul of the master of a parish workhouse.

Thus much regarding the value of Dr. Hassall's own researches on the blood; let us now see how far he is to be relied on, as to his account of the view of others. The section on "the end or final condition of the red globules," commences in the following manner:

> "Everywhere throughout the solid constituents of the animal organization, cellular tissue abounds; it forms the basis of every texture and organ in the body. It is, therefore, scarcely to be wondered at that the opinion should have been adopted, that the globules which exist in such vast numbers in the blood, were to be regarded as the primary and even parent-cells, out of which all the solid structures of our frame took their origin. This theory, to the mind of the earlier micrographers, must have appeared very rational and seductive; and so great, indeed, is the plausibility with which, even in the present day, it is frequently invested, that it is still able to claim a few adherents." (p. 62.)

Connected with the foregoing extract, by a reference to the end of its second sentence, is the following note:

> "Amongst those who regard the blood-corpuscles as cells, may be named Schwann, Valentin, Addison, Remak, and Barry. Schwann describes the blood-globule as a 'nucleated cell,' whilst Valentin considers it to be a nucleus, and that which is usually held to be a nucleus, he regards as a nucleolus. Remak states, that he has witnessed the development of the globules as parent-cells, not within the blood, but within the cells which line the walls of the blood-vessels and lymphatics. The views of Addison are confined chiefly to the white globules, which he conceives to be the fully developed nuclei of the red blood-corpuscles, and which he believes to be transformed into epithelial cells, &c. &c. Dr. Barry goes farther than this; for he states, that every structure which he has examined arises out of the blood-corpuscle—'the crystalline lens itself, and even the spermatozoon and the ovum.' The opinions entertained by Gerber seem to be of a nature somewhat similar to the foregoing." (p. 62.)

Now, in the first place, it seems to us evident that Dr. Hassall, in penning the first sentence of the former of these extracts, had a lamentable confusion in his mind between the "cellular tissue" of the older anatomists, and the "cellular tissue" of the modern physiologist; the former being a fibrous or filamentous structure, whilst the latter is made up of true cells; for he repeats in regard to it a sort of received formula which is only applicable to the first of these tissues, being altogether untrue of the latter,—since, although every tissue and organ in the animal body has its origin in cells, yet there are many in whose constitution, when they are fully formed, cells (in the ordinary acceptation of the term) have no part. Our object in making these extracts, however, was not to criticise this sentence,—embarrassing though it must prove to the student who is taught to look up to Dr. Hassall's dicta as oracular;—but to show that, by the manner in which Dr. Hassall has associated in his note the names of Schwann, Valentin, Addison, Remak, and Barry, as holding the doctrine of the cellular nature of blood-corpuscle, taken in connexion with the context both before and after, the reader, not previously acquainted with the truth, will be most assuredly led to infer that Schwann, Valentin, and Remak participate with Addison and Barry in the notion that blood-corpuscles (either white or red) are "parent-cells, out of which all the solid structures of our frame take their origin;" to assert or imply which is a gross injustice to these distinguished German physiologists, who have never given the least sanction to the speculation in question.

Another example, in which the misrepresentation is yet more palpable, we shall cite from the part of the chapter on *Pus*, in which Dr. Hassall is referring to Dr. Addison's observations touching the conversion of pus into a tenacious mucus-like substance by the agency of alkalies.

> "Addison thus accounts for it: the mucus, and pus-globules, he says, contain filaments imbedded in a fluid; these the liquor potassæ sets free by dissolving the envelopes of the corpuscles, and it is upon these filaments that tenacity of mucus, and of pus so acted on, depends. Mr. Addison, however, carries his reasoning upon the fact of the conversion of pus into a fibrillating substance similar to mucus still further. The white corpuscles of the blood, he states, also contain fibres; and that these corpuscles, immediately on their abstraction from the system, burst, giving issue to the contained filaments." (p. 144.)

Now Dr. Addison has nowhere, so far as we are aware, given the slightest grounds for any such assertion, as that either the pus-corpuscles or the colourless corpuscles of the blood contain fibres ready formed; his statement being, that they contain a fluid which fibrillates when set free by the rupture of the corpuscles. The error is corrected by Dr. Hassall in a subsequent part of the volume (p. 220): "a closer examination of the text" having led him to the perception of it. Ought not Dr. Hassall to have made this examination before publishing his first statement? And can we place confidence in any of Dr. Hassall's representations of the views of other observers, when he is guilty, by his own confession, of such an egregious blunder? We think it right to add, that although we have had occasion to criticise the mode in which Dr. Addison's doctrines are expressed, as not unfrequently obscure and even scarcely intelligible, yet there is no such excuse for Dr. Hassall in the present case; since Dr. Addison's faultiness of style shows itself only when he is treating of abstractions, his descriptions of facts being clear enough, and being, in the instance in question, beyond all power of misconception by a reader who is really desirous of coming at his meaning.

We now return to Dr. Hassall's own observations; and, passing over a variety of points on which we might stop to comment, in the sections on Fat, Epithelium, Epidermis, Pigment-Cells, Nails, and Hair, we are arrested, under the head of Cartilage, by an error of too gross a character to be allowed to escape notice. "Fibro-cartilages," he says (p. 285), "differ chiefly from true or hyaline cartilages, in that the homogeneous intercellular substance is replaced in them by fibres endowed with elasticity; a transformation of structure of which we have seen that certain of the true cartilages are susceptible." From the subsequent frequent mention of the *yellow* colour of the fibres of fibro-cartilages, and from the statement just made respecting their elasticity, it is obvious that Dr. Hassall wishes his readers to understand that these fibres are of the *yellow* or *elastic* form of fibrous tissue, not of the *white* or *non-elastic*. But what is the fact? Out of the whole series enumerated by Dr. Hassall, only the cartilage of the external ear, the epiglottis, and perhaps one or two more, are rendered fibrous by the yellow elastic tissue; the fibres in all the remainder, and especially in the intervertebral and the interarticular fibro-cartilages generally, being of the white or non-elastic substance, their functions being to combine the power of firm resistance to *tension* with resistance to *pressure*. In the same chapter, we find the statement that "the formation of cartilage almost invariably precedes the development of bone;" notwithstanding that, in the next, we have an account of Dr. Sharpey's observations on the intra-membranous development of bone, from which it appears that a considerable share of the first formation of the flat bones, and the *entire* increase of *all* bones in *thickness*, subsequently to the original intra-cartilaginous ossification, is independent of pre-existing cartilage. This discrepancy would be extremely perplexing, were it not for the help we here again derive from the table at the end of the work, wherein Dr. Hassall states (doubtless with an object altogether different) the date of publication of each of the parts in which it was originally issued. We there find that the passage we have just quoted was contained in No. viii, which appeared in March, 1847, whilst the number containing the reference to Dr. Sharpey's observations did not come out until May; so that it is obvious that Dr. Hassall had made himself a little better acquainted with the subject in the interval. Now as Dr. Sharpey's researches had been published a full twelvemonth previously, we submit that Dr. Hassall should have made himself acquainted with them before he began to write upon the subject, instead of trusting to his opportunities of picking up knowledge as he proceeded.

Of the trustworthiness of Dr. Hassall's own knowledge, thus hastily acquired, we shall give a sample from his account of the formation of the Haversian canals. Each of these he regards as commencing with the formation of the bony lamella, immediately investing the blood-vessel that lies within its cavity; this lamella, subsequently expands, and a new lamella forms within it; a further expansion of these two afterwards occurs, and a new lamella is deposited within them, and so on; all the lamellæ previously formed being expanded, to make room for the successive formation of new ones in their interior. Thus, all those observers who have hitherto interpreted the facts of development as indicating the progressive filling-up of the Haversian canals by successive deposits from without inwards, are entirely in the wrong; for no other reason, that we can discover, than that Dr. Hassall chooses so to regard them,—the facts he adduces in support of his own view being easily explained upon the opposite one, whilst there are a number of facts to which he makes no allusion, which render his doctrine quite untenable.

Passing on now to Muscular Fibre, we find Dr. Hassall giving the following account of "the nature of the striation exhibited by the fibrillæ." We had always thought, by the way, that it was the *fibre* which was striated, and not the *fibrillæ;* the alternation of light and dark spaces in these last not being what is commonly called striation.

> "Drs. Sharpey and Carpenter incline to the opinion that each fibrilla consists of a series of particles or cells cohering in linear series, and that the lines [striæ] indicate the point of junction of these. Mr. Erasmus Wilson attributes a still more complicated structure to the striated fibrilla; he believes that two kinds of cells exist in each fibrilla; a pair of light cells, separated by a delicate line, being interposed between each pair of dark cells. Lastly, Bowman considers that the lines indicate the divisions between particles which he denominates 'sarcous elements.'
>
> "My own view of the nature of the lines differs from that of all the gentlemen named. I consider that the lines in question are produced by the simple corrugation or wrinkling of the threads at regular distances; a view the accuracy of which is all but proved by a consideration of the development of muscular fibre, and by the action of acetic acid on the fibrillæ of the heart, the transverse markings of which it entirely obliterates." (p. 341.)

Now on this we have to remark, in the first place, that Dr. Hassall is not satisfied with discrediting (upon very insufficient grounds, as will presently appear) the statements of Drs. Sharpey and Carpenter; he must also misrepresent them. For these observers do *not* regard the transverse striæ (or rather the dark spots on the fibrilla) as indicating the points of junction of the linearly-arranged cells of which they believe it to be composed, but maintain that these spots indicate the *cavities* of the presumed cells, the junction of which is marked by delicate transverse lines intermediate between the dark spots, of which lines Dr. Hassall takes no notice whatever, save when alluding to Mr. Erasmus Wilson's views. It was from having observed this line dividing the light space, but from not having traced the continuity of the light border *round* the dark spot, that Mr. Erasmus Wilson fell into the error of describing each light space as consisting of a pair of cells. Now as all these observers had avowedly founded their statements upon the appearances exhibited by the beautiful specimens of muscular fibrillæ prepared by Mr. Lealand, would it not have been supposed that, before throwing discredit upon their statements, Dr. Hassall would have endeavoured to obtain a sight of some of these preparations? Such, however, does not seem to have been his course. To describe first, and examine afterwards, appears to have been too frequently his method; and the following is an illustration of the consequences of it. In the Appendix we meet with the following confession, which is, at any rate, creditable to Dr. Hassall's candour.

> "At page 241, doubts were expressed as to the correctness of the views entertained by Drs. Carpenter and Sharpey, in reference to the structure of the striped muscular fibrilla. At that period, the author had not seen any of Mr. Lealand's preparations, on the examination of which the above-named gentlemen founded their opinion; he has since, however, been favoured by Dr. Carpenter with the examination of his own specimen, and this would certainly appear to bear out fully their opinion of its cellular constitution." (p. 548.)

Dr. Hassall's "all but proof," therefore, is entirely good for nothing; and we shall consequently not take the trouble to demonstrate his entire misconception of the history of the development of muscular fibre: contenting ourselves with mentioning the fact, that he considers the non-striated *fibre* as the anologue of the *fibrilla* of the striated (notwithstanding that it is occasionally, especially among Mollusca, of larger dimensions than the striated *fibre*); that he asserts that the observations of Schwann, Valentin, and others, as to the original cellular composition of the striated fibre, are applicable to their fibrillæ instead; and that he consequently represents the parallel which Mr. Bowman and others have drawn between the striated fibre in an early stage of its development, and the permanent condition of the non-striated fibre, as altogether fallacious. In support of his own views on this subject, opposed as they are to those of so many experienced microscopists, Dr. Hassall does not bring forward any such evidence, as to give them the slenderest claim to reception.

Passing over the section treating of "Nerves" and a large part of that in which the structure of glands is described,—not because we consider them free from serious errors, but because on the whole they are less faulty than some other parts of the work,—we come to the account of the kidney; in which Dr. Hassall, after stating Mr. Bowman's view of the relations of the Malpighian bodies, coolly takes upon him to say (p. 432), "*this view is undoubtedly incorrect.*" Now if such an assertion had proceeded from a microscopist, whose long experience, known fidelity of observation, and sagacity of interpretation, had acquired for his opinion the highest consideration, and it had been made in reference to the supposed discoveries of some tyro in science, who had shown that he did not know how to see, or how to interpret what he did see, its dogmatism might have been excused. But proceeding, as it does, from an individual whose claim to an accurate knowledge of the animal tissues yet remains in great measure to be established; and directed as it is against not merely the assertion of Mr. Bowman, whose high place in the scientific world is too well known to render it necessary for us to dwell on his merits, but also against the confirmatory testimony of many other observers; we can scarcely find language strong enough to express our disapproval of it. We do not assert that Mr. Bowman is right in every particular. We believe, on the contrary, that the Malpighian capsules are not always the *terminations* of tubuli uriniferi (as stated by Mr. Bowman), but that many of them are diverticula from the sides of the tubes (as was first pointed out, we believe, by Gerlach), which tubes may terminate in loops or in simple cæca. We are inclined, also, to believe with Bidder and others, that the Malpighian tuft does not really lie within the flask-shaped capsule, as stated by Mr. Bowman; but that it is covered by a reflexion of it, as the heart is by the pericardium, or the lungs by the pleura, so as really to lie on the outside of it, whilst apparently received into its cavity. But this is a point of much difficulty, on which we think that observations must be multiplied and repeated in various modes, before even the most accomplished microscopists can arrive at a perfectly certain conclusion. But we do take upon ourselves to assert, and this with a confidence derived, not merely from our own inquiries into the matter, but from the confirmatory assurances of several experienced microscopists whose opinions we have sought, that Dr. Hassall is entirely wrong in the account which he has given of the relation of the Malpighian bodies to the tubuli uriniferi, which is briefly as follows. He describes the Malpighian tuft as spreading *over* the dilated extremity of the uriniferous tube; and as being inclosed, together with the tube, in a thick capsule, formed by a continuation of the ordinary investment of the tubes themselves. Dr. Hassall gives to Mr. Toynbee the credit of being the only writer who in the least understands the true character of the Malpighian capsule; but he is quite at issue with Mr. Toynbee as to the mode in which the secreting tubules and the Malpighian vessels come into relation; so that he stands all "alone in his glory," and there we shall leave him.*

It is a little remarkable that although Dr. Hassall has thought himself justified in thus dogmatically asserting the incorrectness of Mr. Bowman's views on the normal or physiological anatomy of the kidney, he should have altogether abstained from any similar comment on the doctrines put forth by Messrs. Toynbee, Simon, Johnson and Gairdner, respectively, with regard to its pathological anatomy; contenting himself with long quotations from the papers of these gentlemen, which amount altogether to no less than *thirty pages of small type*, without a word of comment; and leaving it to the reader to find out for himself the points on which these observers agree, and those in which they differ, by the comparison of their several statements,—a process which will, of course, be peculiarly facile to the tyro in microscopic anatomy, for whose use the work is more especially designed, and for whose guidance it has been asserted to be so admirably adapted! Had these extracts been made from foreign dissertations but little known, and procurable with difficulty, there would have been some excuse on Dr. Hassall's part for resorting to such a ready mode of filling his volume; but when it is considered that the first three of the papers extracted from are contained in 'Medico-Chirurgical Transactions,' and the last in the 'Edinburgh Monthly Journal," it becomes evident, we think, that Dr. Hassall has no justification, save his want of accurate knowledge of the subject, for not rather giving to his readers such a critical digest of the whole, as would have been of some value to the learner.

Dr. Hassall seems to have a special vocation for putting Mr. Bowman in the wrong. Thus, after quoting (in page 502) Messrs. Todd and

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* Since writing the above, we have met the following passage in the explanation to Plate LX, which seems to have been written subsequently to the text: "Additional observations have convinced me that these complicated bodies are invested, in addition to the thick elastic covering spoken of in the text, with an inner and much thinner membrane; and that it is this which is to be regarded as the proper Malpighian capsule. This covering, I conceive, is conveyed to each Malpighian body by the afferent artery, from which it is reflected over the Malpighian dilatation and plexus of vessels; and it may often be seen as a distinct structure, partially separated from the other constituents of a Malpighian body. The framework of elastic tissue, which invests on every side the tubes and Malpighian bodies, is everywhere continuous by its outer surface, that of one tube with that of the neighbouring tubes, and that of the Malpighian body is also continuous with that of the tubes which surround this Malpighian body. On the other hand, the proper and thin Malpighian capsule is smooth on its outer surface, and not connected by this surface with any other structure, save the afferent and efferent vessels along which it is continued."—It is obvious from this passage, that when Dr. Hassall penned his "text," he had not seen "the proper and thin Malpighian capsule," whose connexion he so confidently stated to have been misrepresented by Mr. Bowman, and that he was therefore a mere tyro in the minute anatomy of the kidney. Perhaps, as he prosecutes his inquiries, he may find out that Mr. Bowman (like Drs. Sharpey and Carpenter) was right all the time, in the essential point of the derivation of this capsule from the tubulus uriniferus.

Bowman's description of the olfactive region, in which it is stated that "glands apparently identical with sweat-glands, exist in this region in great numbers," Dr. Hassall "does not hesitate to affirm, that no glands at all analogous to sweat-glands exist in it." Has Dr Hassall examined Mr. Bowman's preparations, that he speaks so confidently of the absence of what Mr. Bowman so positively affirms to be present; or does he rely solely upon the very insufficient negative evidence of his own inability to find the glands in question? So, again, after quoting Mr. Bowman's account of the structure of the anterior elastic lamina of the cornea, he says that he has made diligent and repeated search for it, or for any structure resembling it, without success; so that he "has no hesitation in asserting his disbelief in the existence of any membrane in the slightest degree analogous to the posterior elastic lamina in the position indicated." Here, again, we ask ourselves whether Dr. Hassall has sought from Mr. Bowman a sight of his preparations, or information as to his method of demonstrating the tissue in question, before he thus unhesitatingly negatived Mr. Bowman's very circumstantial description.

One of the very few original observations of Dr. Hassall's, that will bear criticism, is that which he published a few months since, on the follicular depression in the centre of the filiform papillæ; which does not seem to us, however, to be by any means invariably present. But we cannot accord with Dr. Hassall, that these papillæ minister to the sense of taste; which their whole structure seems to us to negative. That they cover nineteen-twentieths of the mucous membrane of the tongue, is no valid argument in favour of this view; in fact, this universality of distribution, in contrast with the more limited distribution of the fungiform papillæ, which, again, is in remarkable harmony with the relative sensibility to taste possessed by different parts of the tongue, leads us fully to agree with the opinion of Messrs. Todd and Bowman, in regard to their chiefly *mechanical* functions,—an opinion which is fully confirmed by the facts of comparative anatomy, especially in regard to the tongues of the Carnivora. The difference in the distribution of the nerve-tubes, also, between the filiform and fungiform papillæ, is a point of some importance, in regard to which Dr. Hassall makes the following erroneous statement: "Tubular nerve-filaments, terminating in loops, have been discovered in the fungiform and filiform papillæ." (p. 499.) Now this is true only of the filiform papillæ, in which the loops were first seen and described by Messrs. Todd and Bowman; but it has *not* been made out in the fungiform papillæ, in which Dr. Waller asserts that he sees the free ends of the nerve-tubes, whilst other competent observers, after anxious attention to the matter, have professed themselves unable to arrive at a positive conclusion on the subject, the extremities of the bundles of nerve-tubes in the fungiform papillæ exhibiting appearances which do not distinctly indicate either loops or free extremities.

Notwithstanding the distrust so strongly expressed by Dr. Hassall, of the correctness of Messrs. Todd and Bowman's observations, he does not hesitate to make use of them when it suits his purpose; the whole account of the minute structure of the internal ear, amounting to no less than eight pages, being taken verbatim from the authors of the 'Physiological Anatomy;' in default, we presume, of any materials derived from original investigation.

As a specimen of Dr. Hassall's powers of original investigation and description, we shall quote the following account of the Pituitary Gland, which we find in the Appendix.

> "The pituitary body, inasmuch as it presents the usual characteristics of glandular structures, would be more accurately denominated the pituitary gland, a term which conveys its real nature.
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> "The pituitary gland, in the absence of an excretory duct,—unless, indeed, the infundibular process attached to it is to be considered as such—would appear to be allied to the vascular glands, while, in some other respects, it resembles the ganglia of the sympathetic, which also are glandular organs (!).
>
> "It consists of two lobes, an anterior and a posterior, which differ from each other in size, colour, and consistence; the former is considerably the larger of the two, is of yellowish-gray colour, and of much firmness and density; while the latter is gray and soft, and scarcely differs in consistence from the gray matter of the cerebrum.
>
> "As the two lobes differ in colour and consistence, so are they somewhat different in structure also; the anterior or denser lobe is made up of numerous granular cells, very various in form and size, and many of which are in some cases of very considerable dimensions; these cells lie in meshes of fibrous tissue, which separate and parcel them out, each of the larger cells occupying separately an entire mesh. The posterior lobe differs from the anterior in the smaller size of its cells, and the less amount of fibrous tissue which enters into its composition.
>
> "The pituitary gland is connected with the brain by means of the infundibulum, the small extremity of which is attached to the superior concave surface of the gland, and is united principally to the posterior lobe, which it also resembles in structure, containing very many grandular* cells in its parieties.*
>
> "This gland resembles a ganglion of the sympathetic in the large size of its cells and in the arrangement of its fibrous constituent; but differs from it in the irregular form of the cells, and in the absence, so far as has been yet ascertained, of tubular nerve-fibres." (p. 535.)

Now, by way of contrast to this description, which occupies exactly a page of Dr. Hassall's volume, we shall quote the description of it by Messrs. Todd and Bowman, which occupies twelve lines of their treatise.

> "This body consists of two lobes, of which the anterior is much the larger, and which also differ in point of colour, the anterior being of a yellowish-gray, the posterior more similar to the gray matter of the brain. The former is considerably denser and firmer than the latter, which does not differ in consistence from the cerebral gray matter. The infundibulum is chiefly connected with the posterior lobe.
>
> "In point of structure this body somewhat resembles the vesicular matter of the brain. We find in it large vesicles with distinct nuclei and nucleoli, lodged in a granular matrix, and between them numerous bundles of white fibrous tissue. These are most numerous in the anterior lobe. Its use is quite unknown." (Physiol. Anat. p. 289.)

It will be quite obvious, we think, to our readers, that Dr. Hassall's description, in the third and fourth of the paragraphs we have cited, is a mere amplification of that of Messrs. Todd and Bowman; the only particle of additional information being the statement that the cells of the anterior lobe are larger than those of the posterior, and lie singly in the meshes of the fibrous network. This statement, with the accompanying figure, constitute the only evidence (a quite sufficient one we admit) that Dr. Hassall has examined the structure for himself; but having made so much use of the description of his predecessors, in what is intended to be the account of his own observations, it would have been as well to have acknowledged it, more especially as they were the first, so far as we are aware, to give any account of the structure of this body. Of the points which they have left unnoticed, and on which our idea of its nature must be founded, (namely, the mode of distribution of the blood-vessels, and the presence or absence of *gelatinous* nerve-fibres in the fibrous tissue.) Dr. Hassall says not a word; his statement as to the absence of *tubular* fibres being obviously insufficient for our guidance. The curious way in which Dr. Hassall gets out of the difficulty of determining whether this body be a gland or a ganglion, by telling us that the sympathetic ganglia themselves possess a glandular character, gives us occasion to note the remarkable views entertained by our author with regard to nerve-cells in general, which will be apparent from the following extract.

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* These terms are the author's. The first is corrected in the errata to "granular." The latter is left as it is.

> "The nervous matter composing the two or three systems into which, in the present day, it is divided, presents all the essential and distinctive characters of a true gland, so that its description would have been more correctly given under the general heading of 'Glands.'
>
> "The nerve or ganglionary cells present essentially the same structure as all other glandular cells, and are doubtless continually passing through the same phases of development and destruction during the progress of nutrition and secretion.
>
> "The secreting or glandular cells in the brain and spinal marrow are, for the most part, aggregated into distinct masses, the term ganglia being equally applicable to these masses as it is to those existing in connexion with the nerves of the sympathetic system." (p. 373.)

Dr. Hassall does not tell us what is the product of this secreting action, nor absolutely say that "the brain secretes *thought*, as the liver secretes bile;" but we cannot tell what other interpretation to put upon his language.

We have now said enough, we think, to warn our readers against that too ready adoption of Dr. Hassall's views, to which they might be led by the tone of confidence in which these are enunciated, and by the indiscriminating laudation which has been bestowed upon them by the author's partial friends. Before we quit the literary portion of the work, however, we must say a few words in regard to the general arrangement of its subjects, and the proportionate space assigned to them. The original announcement of the work described it as the 'Microscopic Anatomy of the Human Body in Health and Disease;' and this is retained as the title of the complete work, notwithstanding that the accounts given of *morbid* structures are of the most imperfect and fragmentary kind possible. The only adventitious product of which any notice is taken is pus; the microscopic characters of tubercle, cancer, *et hoc genus omne*, being altogether passed by. So in regard to the morbid changes in the particular organs, we find that, whilst a certain class of diseases of the kidney has *thirty-two* pages assigned to it, the whole microscopic pathology of the liver is dismissed in *two* pages, and that of scarcely any other organ is in the least degree touched on. How Dr. Hassall can feel justified in putting forth his work as a treatise on the 'Microscopic Anatomy of the Human Body in Health and Disease,' surpasses our comprehension. Again, in a work devoted to *human* anatomy, we scarcely expect to find so much space devoted to *comparative* anatomy as is given by Dr. Hassall in some departments of his treatise, especially in that which describes the Blood. We have no objection whatever to occasional references of this kind, since they add much, if judiciously introduced, to the value of the work. Thus there are certain organs and tissues which require to be examined as soon after death as possible, in order that their true characters may be made out; and the opportunity of making such examinations on the human subject can so rarely occur, that we must seek the desired information from other sources. In this case, then, we appeal to the lower animals for instruction as to the *corresponding* parts in man; as we must also do with regard to certain vital phenomena occurring during life (such as the circulation of the blood), which we cannot study in his organism. But we also have recourse to them for such illustrations as shall serve for *comparison* with human structure, whereby its characters may be more satisfactorily elucidated; as, for example, when we study the nucleated blood-corpuscles of the oviparous vertebrata, or the colourless corpuscles of invertebrated animals. We have no fault to find with Dr. Hassall's use of the former kind of illustration; and we should not grumble at the amount of space or the number of figures bestowed upon the latter, had they been better distributed. Giving him credit for all the figures as *human* when they are not stated to be otherwise (although we believe that many of these are taken from other animals), we find that, out of 383 figures, 308 represent human normal anatomy, 17 human pathological anatomy, and 58 comparative anatomy. This might seem by no means a disproportionate allowance of comparative anatomy, even in a work professing to treat of the human organism alone; but out of these 58 figures, no fewer than 35 are given to one subject only, namely, the blood and circulation, the figures illustrating the conditions of the human blood-disc in health and disease being no more than 9, or scarcely above *one fifth* of the whole. Dr. Hassall may plead that comparative anatomy affords more information on this subject than on most others; and this we readily admit. But is that reason enough for dwelling so prominently upon the comparative view of the subject as to give to the blood-discs, &c., of other animals *four times* as many illustrations as are given to those of man; whilst the comparative structure of the osseous and dental tissues, which affords nearly, if not quite, as much to interest, is left altogether unnoticed? Or, in a work on the 'Microscopic Anatomy of the Human Body in Health and Disease,' should we expect to have only 17 figures devoted to morbid human anatomy, when 58 are given to the normal anatomy of other animals? Or, again, should we expect to find nearly one sixth of the text, and more than one ninth of the figures, devoted to the Blood alone? Important as this component of the body is in the estimation of the physiologist, pathologist, and animal chemist, its microscopic characters may be very speedily described. Surely there is as much to be said about the solid tissues, such as muscle, nerve, hair, bone, or teeth, as about the blood. It seems obvious, therefore, that Dr. Hassall had formed but a very inadequate calculation, when he commenced his work, of the relative space which the different subjects should occupy; since, if he had described the solids as fully as he has the fluids, and had treated of the other "adventitious products" as he has of pus, his work judging by the scale of Mandl, Lebert, and other systematic treatises, would have attained at least ten times its present dimensions. This was pointed out, soon after the appearance of the early numbers of the work, by one of our predecessors; and the result has fully justified the prediction, since it has been only by a complete departure from the scale on which it was commenced that Dr. Hassall has been able to bring it within anything like the compass originally announced.*

Among the faults which we have to find with this production, is the extraordinary carelessness which it displays in regard to the spelling of scientific terms and proper names; a carelessness which we scarcely know how to account for, except by the assumption of a degree of ignorance of which we should be sorry to suppose Dr. Hassall capable. Thus, in the explanation to Plate X, which is intended to illustrate the circulation in the fowl's egg, the *area vasculosa* is spoken of as the *arca vasculosa;* and this not in one or two instances only, such as might be set down to an error of the press, but every time, save once, that the words are repeated, amounting to no fewer than *eight* times in the space of two pages; so that it would seem evident that *arca* is what the author intended, and that the solitary *area* must be an error of the press, were it not that, in the list of errata at the end of the text, we find the following; "Plate IX, for *arca* read *area.*" The author ought to have cancelled a page so sadly disfigured.—In pp. 58 and 59, we find the term *cellæform* (not, in our opinion, a very happy one), invented by Mr. Wharton Jones, transformed, on each of the three occasions on which it is used, into *cæliform*. The word *cilia*, wherever it should occur (pp. 239, 240, and elsewhere) is rendered *ciliæ;* in like manner, *spicula* is invariably rendered *spiculæ* (a mistake from which other writers are not free), except in the explanation to Plate XXXIII, where it is metamorphosed into *speculæ;* and in p. 397, we find *cæca* converted into *cæcæ*. In pp. 501-3, we twice find *pituatory* for pituitary; and to crown all, in pp. 505-8, we find repeated no fewer than *fifteen* times, *schlerotic* for *sclerotic*, the word not being once spelt right, even by an error of the press It would seem as if Dr. Hassall had desired to make a display of his scholarship, by improving upon the received orthography of this term; but unfortunately he omitted first to consult his Greek dictionary, in which he would have found that, if he wished to make a change for the better, he should have substituted *sk*, not *sch*, for the *sc* of the English alphabet; the Greek being σκ not σχ. He might just as well turn *skeleton* into *schelеton*. We do not notice single errata; confining ourselves to those whose repetition leads us to believe them intentional.—So, in the citation of proper names, we find *Majendie* twice repeated for *Magendie* (p. 103); *Bequerel* many times for *Becquerel* (in p. 109 and elsewhere); and Dr. *Hanfield* Jones for Dr. *Handfield* Jones, four times in pp. 411-3, and again elsewhere; not to mention a number of *single* errata of a similar description.

We now approach the conclusion of a most unpleasing task. It would have afforded us sincere pleasure to be able to speak of Dr. Hassall's production in such terms of commendation, as might seem fairly called for by the labour which he has obviously bestowed upon the work. And if he had contented himself with attempting to give a digest of the researches of microscopists who had been working at the minute anatomy of Man, during the years in which he was engaged upon his Fresh-water Algæ, and had endeavoured to present his readers with a faithful representation of their observations, we should have received it with gratitude, and should have passed very lightly over any imperfections in plan or execution that we might have discovered in it. But it is because he has set himself up as an authority, entitled to speak *ex cathedrâ* upon subjects to which he has not given a tenth part of the attention that has been devoted to them by the experienced microscopists upon whom he passes summary judgment, that we have felt it our duty to subject his claims, both as an original observer, and as a narrator of the doctrines of others, to a somewhat rigid examination.

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* The work was advertised to consist of twelve parts, each to contain four plates. It has been completed in fifteen, or rather seventeen, the last being a triple part; an excess which cannot be considered as immoderate, when compared with that of other works published in parts. We advise our readers never to commence the purchase of such, unless they are quite prepared to pay twice as much, and to wait twice as long, as they are led to expect: anything within that estimate will then be a clear gain to them.

We have now, however, a pleasanter duty to perform. We have hitherto said nothing of the execution of the plates, which are really the most important part of the work; and we can honestly say, that they form a series which possesses considerable value, especially for those who go to the microscope with a very imperfect idea of what they are to see. Dr. Hassall was not fortunate in his early attempts; and the plates of his first two or three numbers gave but a poor prospect for the remainder. Several of these plates, however, have since been replaced by others of much superior execution; and only two or three of the first batch remain, which we should have strongly recommended Dr. Hassall to supersede. For example. the tyro who should go to the microscopic examination of the blood, with the expectation of seeing the characters of the red and colourless corpuscles as strongly marked as they are in Plates IV, V, and VI, will most assuredly be grievously perplexed. But these are the exceptions; the greater number of the figures being tolerably successful delineations of the objects they are intended to represent; and several of them being of considerable excellence, artistic as well as scientific. The figures of Fat want the peculiar shadowing, the effect of the high refracting power of oily matter, which is so remarkable a character of that tissue; this is given much better in the figures of Milk. The figures of the Epithelia are for the most part very good; but of those of Cartilage, Bones, and Teeth, we can speak most highly; several of those of Muscle and Nerve are very good, but some of those of the former (especially Plate XLIII, fig. 6) are obviously delineated rather by the author's mind than by the draughtsman's eye. The plates of the distribution of the blood-vessels in the liver (LV and LVI) are, we believe, the first attempts made in this country at the illustration of such subjects by colour-printing; and although they do not equal some of the plates of this kind which have been executed on the Continent, yet they are very creditably executed. The same style of printing is adopted in several of the plates in the latter part of the work; but with not quite the same success. Some of these plates offend the eye by their "smudginess," especially when contrasted with some of the remarkably "clean" and "sharp" delineations which have preceded them. On the whole, however, we have pleasure in repeating, the plates form a valuable series, and certainly constitute the most complete guide which can at present be put into the hands of the student, who seeks to become acquainted with the microscopic characters of the human tissues. And notwithstanding all that we have felt it our duty to say in disparagement of the accompanying text, we can still conscientiously add, that it contains a large body of information, for which the reader would otherwise have to search through many volumes; and can thus afford valuable aid to such as have not time or inclination to make themselves acquainted with the originals, still less, to observe and inquire for themselves. We think, however, that we have given adequate ground for the caution with which we conclude,—that those who have recourse to Dr. Hassall's work for instruction, should be cautious of relying too implicitly either upon his own observations, or upon his statements of the views of others.

Art. VIII.

Om Spedálskhed. Ved D. C. Danielssen, overlæge ved Hospitalerne for Spedálske i Bergen, og C. W. Boeck, Lector i Medicin ved Universitetet i Christiania. Hermed et Atlas hvori 24 lithographerede Plancher. —*Christiania*, 1847, 8vo, pp. 516.

On Spedálskhed. By D. C. Danielssen, Head-Physician to the Hospital for Spedálskhed Patients in Bergen, and C. W. Boeck, Lecturer on Medicine in the University of Christiania. With an Atlas of 24 Lithographic Plates.

We request our readers to take the term *spedálskhed* as they find it, and to omit, for the present, any inquiries as to the synonyms under which it appears, either in the popular language of our own and other countries, or in the systematic nomenclature of nosological writers. It is the name, current in the three Scandinavian kingdoms of Denmark, Norway, and Sweden, for a certain species of cutaneous disease, which, although by no means unknown elsewhere, is most common in those quarters of Northern Europe. Being a native name, specially applied to a special disease, its adoption, during the first part of the present paper at least, will ensure a distinctness of idea, which would have been by no means so certain, had we begun with the historical portion of the subject rather than with the absolute realities of the disease. These, with a discussion of the historical question as well, from the contents of the volume at the head of this article. It is a work which reflects great credit on the care, candour, and research of the writers; and has been published in pursuance to a vote of the Storthing, at the expense of the Norwegian government.

Chief localities. The chief seat of the disease in question is the west coast of Norway, between the 60th and 70th degrees of North latitude, comprising two out of three of the Norwegian capitals, i. e. Bergen and Trondjem, several minor towns, and a scattered population of sailors and fishermen. Northwards and southwards of this line, the ailment becomes exceptional, though not absent. Eastwards it scarcely extends beyond the sea-coast. It is not found in the mountainous country between the Dovre ranges and the sea; nor is it found in any of the gorges and forests of the Dovre range itself. Still, in one sense of the word, it spreads inland. In no part of the world is the land so deeply indented by the sea as in the west of Norway; and in no part of the world do the combined climatological influences of sea, forest, and mountain equally act and re-act upon each other.

I. *Spedálskhed of the first form.—General character of the disease.* The tangible and prominent signs of the *spedálskhed* consist in a specific affection of the skin, the effect and exponent of a specific constitutional derangement, and, in its turn, signifying (if not determining) a long series of further morbid changes, always intractable, and almost always fatal.

Varieties. These are determined, as in most other diseases, by the rate at which the morbid changes take place, and the extent to which they are complicated or uncomplicated by other symptoms; so that there is the *acute spedálskhed* and the *chronic spedálskhed.* There is also *spedálskhed* unaccompanied by any notable impairment of the nervous functions; and a *spedálskhed*, wherein the loss either of general sensation, or of some special sense, is superadded to the more usual phenomena of the disease, possibly, in some instances, replacing them.

The uncomplicated *spedálskhed*, however, is so much more common than the other, that, for the purpose of illustration, as well as for all the purposes of practice, it may take an almost exclusive prominence; it being also premised that of this kind the chronic form is the more usual one.

Simple spedálskhed.—Chronic form.—Premonitory stage. Chronic as is the character of this variety of the disease, its accession is signified beforehand by a series of precursory symptoms as truly as the most acute exanthemata; prodromi, of which the duration is to be measured not by hours or days, but by weeks, months, and years. Lassitude, stiffness, pain on change from repose to motion, and lethargy, may distress the patient for an indefinite period, and with no assignable cause. Then set in chills and shivers, epigastric oppression, nausea, and sickness,—the more unequivocal signs of determinate constitutional derangement. The skin, however, is still unaffected.

The periodically eruptive stage. As truly as, in measles, scarlatina, or smallpox, the appearance of the rash follows a certain series of *almost* pathognomonic precursors; so regularly does the peculiar cutaneous eruption of *spedálskhed* follow the symptoms aforesaid, replacing and relieving them. The *mal-aise* abates as the eruption breaks out. This, although uncertain in respect to the part of the body which it attacks, appears, as the case may be, on the face, the trunk, or the extremities. In all cases, however, its seat is the true skin; and, generally speaking, its colour is constant; deep brown or crimson, rather than copper-coloured, it rises but little above the level of the skin, and disappears upon pressure. The size of these discolorations is less uniform—from that of a lentil to that of the palm of the hand; so also is the outline, this last being generally irregular. When the body it heated, they show the plainest; they show well also when the body is chilled. After a few days, a few weeks, or a few months, they disappear;—unfortunately, only to make way for the symptoms that they originally superseded, and, in due time, to return again in a severer and more permanent form.

And so the disease proceeds—the slightly febrile symptoms followed by the eruption, and the eruption followed by the slightly febrile symptoms; each, however, increasing in intensity, in proportion to the duration of the malady. Half a year may elapse between two crops of blotches; the blotches, in each case, becoming darker in colour, and with a greater tendency to raise the skin. They also enlarge their circumference; the effect of which is to convert a distinct into a confluent eruption. It may be as much as five years, before the disease passes from the first to the third of its stages.

Permanently eruptive stage. The skin is now completely involved. The discolorations no longer disappear under pressure. Their colour is more intense; the thickening of the corium more notable; and there will no longer be any retrocessions or disappearances of the eruption. On the other hand, the general system is easier, the bowels more regular, the appetite improved.

For some time the specific morbid thickening of the corium will be the leading phenomenon. This raises the surface into what the Norwegian writers are satisfied with calling *nodes* (*knuder*), but which are oftener called *tubercles*—hard, and irregular both in respect to height and outline. The epidermis remains entire. The subcutaneous cellular tissue, however, becomes infiltrated. Hence the parts affected swell; and when the face is one of them, the eyebrows fall off—a change which passes with both the learned and unlearned as a good obvious sign of the true *spedálskhed* character of the disease.

Notwithstanding, however, the magnitude, the induration, the general diffusion, and the confluent character of the now shapeless, discoloured, and lobulated deposits, as long as the limbs retain anything like their due proportion and their normal form, and until softening and ulceration have set in, the patient suffers in his appearance rather than in his health, and is disfigured rather than disabled; whilst the disease, although constitutional in origin, is still, in its "local habitation," a *skin*-disease—of the corium in the first instance, and of the sub-cutaneous cellular tissue in the second. Although it will soon be much more than this, we shall continue, for the moment, to limit ourselves to its cutaneous aspect, and to follow it to—

The ulcerative stage. The thickened and indurated corium softens and ulcerates; the ulcers give an acrid ichorous discharge, and the acrid ichorous discharge forms crusts upon the surface. These are like the crusts of rupia, only more numerous, more general, and more irregular in outline. As far as the *Spedálskhed* is a cutaneous disease, this is the last of its stages, and the most distressing of its forms.

Let us now investigate its action upon other tissues than the skin, the secondary symptoms, so to say, of this formidable scourge.

Extension to and from the mucous surfaces. Ulceration of the buccal cavity, of the tongue, of the hard and soft palates, and of the tonsils, generally succeeds the ulceration of the cutaneous surface; the ulceration being subsequent to induration, and originating round a deposit of the specific matter of *Spedálskhed;* and being at once deep, extensive, and destructive. It spreads upwards to the nares, and destroys the septum; it spreads downwards to the larynx, and destroys the thyro-arytænoid ligaments. The discharge, by its acridity, creates fresh superficial ulceration; excoriating the parts with which it comes in contact. It also, as on the surface, forms crusts, so that the breathing is impeded by the stoppage of the nostrils, and the voice by the infiltration of the larynx.

The affection of the *eye* is of a character pre-eminently specific. A slight lack-lustre discoloration of the white of the eye is the first sign of impending mischief; along with which there is occasional injection of the vessels of the conjunctiva. Afterwards, on the outer rim of the cornea (not on the cornea itself, but external to it), appears a grayish-yellow spot; which gradually encircles the cornea, and then invades it. It is converted into a thickening. The tarsi also become thickened, irregularly and partially; having been previously tender and vascular. The eyelashes fall out, and the induration of the lid sometimes extends to the eyebrow. This, however, has generally been previously involved in disease. The sclerotica grows thickened, rough, and nodular, and the cornea becomes dimmed; and when this takes place, the patient begins to complain of pain in the ball of the eye. The deposits increases, fills the anterior chambers, press upon the iris, destroys sight, creates acute pain, gives an increase of bulk, and an irregularity of surface to the whole eyeball, and prevents the eyelids from meeting; the pupil, as long as it was visible, having been angular. The swollen mass, after its *maximum* formation, softens, so that the eye is lost; whilst, as a set off, the eyelids can again be closed, the secretion of tears loses its corrosive acridity, and the pain ceases.

This is the disease in its external form, as showing itself by the nature and in the order of its symptoms. We are prepared for the character of its conclusion—death by debility, after an uncertain duration of pain, and generally preceded most immediately by intractable colliquative diarrhœa.

Post-mortem appearances. Swellings of the glands, wherever situated, especially those of the groin, neck, and axilla, might have made part and parcel of the symptoms of *spedálskhed*, subject to observation during lifetime. Still they are not *wholly* so visible before as after death. The true *autopic* changes are chiefly referable to the mucous and the serous tissues. Here they occur with considerable uniformity and constancy; and as might be expected, in the forms of local thickening, with or without subsequent softening and ulceration, according to the duration of the disease in a given part. They are not of a kind to throw light upon the affection of the corium; to which they are generally subsequent in point of time, and similar in the character of development.

Mucous tissues. The specific deposit of *spedálskhed* occurs in the intestines, both large and small, in the gall-bladder, in the Fallopian tubes, and in the lining membrane of the uterus. In the first of these localities, it coincides with swelling, softening, and degeneration of the mesenteric glands; in the second, (frequently) with gall-stones, and (as will soon be seen) with disease of the liver; in the uterus, the deposit so far passes into the fibrous structure, as to appear to have developed itself within the parietes. It is doubtful, however, whether this be really the case. The ovaries, also, are often diseased.

Serous tissues. The pleuræ, pulmonary, costal, and diaphragmatic, are pre-eminently liable to the deposit. It puckers their surface, it corrugates their tissue, and contracts the subjacent portions of the substance of the lung. The pericardium also suffers the same change, and exhibits the same appearance. These parts being implicated, it is a matter of regret that the stethoscopic sounds audible during life are not enumerated. The peritoneum, over every portion of its extent, and in its contact with each of the organs that it invests, is affected to an extent, and with a regularity, beyond that of even the pleura and pericardium; and, more than other parts of the peritoneum, the serous investments of the kidneys and of the bladder.

The vessels. The diameter of the arteries is rarely diminished: the inner coats, also, remain free from even the slightest deposits of atheroma; but the outer coats are thickened by a lardaceous deposit on the outer surface, by which they are often glued to the surrounding tissues. Generally speaking, the arterial lesions occur in the vessels nearest to the mucous or cutaneous surface affected. Hence they have the appearance of having been propagated by extension, rather than of exhibiting a general constitutional derangement acting independently of continuity.

The nerves. What applies to the arteries applies to the nerves also. The neurilemata nearest to the seat of the mucous or cutaneous deposits, are the tissues most generally affected; this affection being—*mutatis mutandis*—the affection of the arteries, or a thickening of the outer covering. The great cerebral spinal centres are also comparatively uninjured; this being the case with their investing membranes, as well as with their proper substance. But not so the nerves of the ganglionic system. The cæliac vessels and the cæliac ganglion have been found confounded in one homogeneous pulp, wherein the minutest investigation could detect neither nerve nor blood-vessel.

This may be a proper place for observing that the bones and the periosteum generally escape in *spedálskhed.*

The internal tissues of organs. The pancreas is generally healthy; the liver and the spleen diseased. But what is the condition of the kidneys? what that of the lungs? The former are as generally and as pre-eminently disorganized throughout all their tissues, as the latter are free from tubercle or even the suspicion of tubercle; a pair of facts of which the negative is, at least, of equal value with the positive one. There is disease in the pleura, and there is disease in the larynx, but none in the pulmonary parenchyma. As to the kidney, it is congested, hypertrophied, filled with a yellow or white deposit, thickened as to its capsule, and lobulated in outline, in cases where no other internal organ is otherwise than sound—when even the pleura and peritoneum are smooth, glistening, and free from either thickening or the tendency to thicken.

The blood. Thick, viscid, dark-coloured, and, occasionally, extravasated.

The acarus. Upon this subject we shall translate the words of the writers themselves:

> "We have already stated that, in a certain form of node (*knud*), covered by a thick, dark brown crust, *acari* present themselves. These are found by millions, not only on the surface, but also to a considerable depth in the softened substance itself. Viewed under a common lens, they merely look like small white points. Under the microscope, however, they show themselves at once as acari, in all stages of development, from the egg to the fully-formed animal. Moreover, the node-mass (*knudemassen*) consists of softened tissue. Here, on the inner surface of the thick scurfs, may be seen an innumerable quantity of small yellowish-white points; these are also the animal. The scurfs themselves, although naturally of extraordinary hardness, are no sooner softened by soaking in distilled water, than they lose their hornlike character. It can then be seen, under the microscope, that they consist, almost exclusively, of the skins of dead acari, glued together by a viscous matter. In truth, there is a little world of animalcules, wherein generation succeeds genera-

> tion, whilst their exuviæ form the present remarkable kind of *spedálskhed*. We are far, however, from believing that the presence of these acari in anywise explains the peculiar nature of the disease. It only determines this particular form of it. It is more than three years since we first drew attention to the presence of the animalcule in certain forms of the disease in question, and we considered that, in many respects, it was different from the common *acarus* (*sarcoptes*) *scabiei*, a view in which we were confirmed by the discussion of the naturalists at the Christiania meeting of 1844. Since that time, however, we have found reason to hesitate in making a new species of it." (pp. 173-4.)

Of the microscopic observations, the one just noticed is the most important. In the way of chemistry, the leading fact discovered has been the existence of a disproportionate quantity of albumen. As to the matter of the deposit, its general uniformity, throughout all the organs and tissues, may be safely predicated. There is an excess of albumen (after softening, a deficiency of fibrine), an excess of fatty matters, and an excess of salts. Furthermore, whatever may be the exact nature of the *dyscrasia sanguinis*, which is either the cause or the effect of the *spedálskhed*, it exists, in the most marked manner, in the stage of the disease *anterior* to the eruption,—before any external symptom has shown itself.

The acute variety. Without pretending to measure the exact extent to which the two forms of *spedálskhed* may fall into the usual divisions of *acute* and *chronic*, we simply notice that in the first two stages of the disease, the morbid processes may be accompanied by febrile derangement of the system, and the morbid changes may be effected at a proportionately accelerated rate.

a. The *premonitory symptoms* may be accompanied by fever; in which case a fortnight will do the work of months and years, and a *permanent* cutaneous eruption may be developed at once.

b. The eruption itself may be accompanied by fever. The patient may be delirious. The pulse may be 120—130. Definite febrile exacerbations may occur towards night. There may be headache, thirst, watchfulness, constipation, a red tongue, a dry skin, and scanty, high-coloured urine.

II. *Anæsthetic spedálskhed—always chronic. Premonitory stage.* With the exception that the depression of the spirits is more marked, the absence of febrile excitement more universal, and the approach of the disease more insidious, than in the common form, the anæsthetic *spedálskhed* is foreshadowed by a train of uneasy sensations, much resembling those already described. Not so, however, when we come to—

The eruption. Briefly to characterise the two eruptions, that of the first form of *spedálskhed* is more *tubercular* than aught else; whilst that of the second is of the nature of *pemphigus*. On some part of the body, most commonly on the extremities, appear one or more *bullæ*, varying in size from that of a hazel-nut to that of a hen's egg, appearing suddenly and painlessly, transparent or translucent, and breaking within a few hours after their appearance. The sore, thus left, ulcerates, but without spreading superficially, and secretes a yellowish ichor, which sometimes forms crusts; these, however, never attain any considerable thickness, but fall off, and are replaced by others. Finally they heal; when a new bulla breaks out elsewhere, and runs a similar course. The cicatrices of the healed ulcers are white, shiny, and slightly sunk below the level of the skin. As in the previous disease, the constitutional derangement and the cutaneous eruption are in the inverse ratio to each other.

The Anæsthesia. Loss of sensation, the characteristic of the present form is so surely denoted by the antecedent phenomena just described, that, in cases where *spedálskhed* is suspected at all—given the eruption—the *anæsthesia* may be prognosticated. Yet it is as *an*-aesthesia that it begins. Over-sensibility, *hyper*-æsthesia, is the mode in which the nervous centries first betray their irritation, and signify their incipient disorder. The extremities, the face, the surface of the trunk, may, each or all, be morbidly intolerant of touch. They may be so for years together; and when this painful susceptibility departs, it shall be to give way, not to a healthy state of the nervous functions, but to *loss* of sensation, local or general, absolute or partial. Although this loss of *sensation* be the pre-eminently characteristic element of *anæsthetic spedálskhed*, loss of motion may be—and often is—superadded.

Ulceration and mortification. A blueish, tender, fluctuating swelling appears on one of the feet. It breaks, and discharges a sanious ichor. The soft parts are absorbed, and the bone becomes exposed. Superficial laminæ of the bone exfoliate. The edge of the ulcer gradually becomes callous and cartilaginous, contraction of its circumference takes place, and partial filling-up is the result.

The extent to which this occurs is the measure of vitality remaining. Later, however, and when the ænaesthesia has become more absolute, the toes or fingers not only ulcerate but mortify; dropping off joint by joint, and one by one, in slow and painful succession. This mortification is the third great distinctive mark of the *anæsthetic spedálskhed.*

Pyrosis, thirst, local swelling, and albuminuria, are the most usual concomitants of this disease; and its sequela is Death. The system sinks under the impairment of its nutrition, and, often, from the effect of wasting diarrhœa.

Post-mortem appearances. Those of the great nervous centres are, naturally, of the most importance; and they are such as fully to account for the anæsthesia—and more than the anæsthesia—which has been so prominent an element in the disease. Whatever else may be said as to the mysterious character of the present affections, it cannot be stated, as in tetanus and hydrophobia, that the visible morbid changes are insufficient to account for the visibly deranged functions. There are pathological changes in the spinal cord, and there are pathological changes in the brain.

The spinal cord. Circumscribed morbid changes on the *posterior* portion of the spinal cord are the leading phenomena here. In the proportion to the amount and duration of the *anæsthesia*, the *venæ spinales internæ posteriores* are found to be injected. Then follows the appearance of an albuminous exudation on the arachnoids—local in two ways: local in respect to its being confined to a single portion of the spinal tract (dorsal, cervical, or lumbar, as the case may be), and local in respect to its almost universal limitation to the posterior surfaces. Here it may extend to the posterior roots of nerves, although very rarely to the anterior; whereas, whenever these latter are diseased, the posterior are involved also. The local exudation glues the arachnoid to the *pia mater;* this latter membrane being thickened and hardened, but not generally much injected. The gray substance of the cord loses colour, and gains consistency. It becomes pale, but, at the same time, hard; a compact effusion between the arachnoid and the *dura mater* is a later symptom, and the exponent of a higher amount of disease. The spinal substance itself becomes injected, and in its more altered form is hard, *quasi*-cartilaginous, slightly crepitant under the knife, and so much increased in consistency as to change its shape from round to flat, but not to break down under pressure of the finger. There is then sclerosis; and, in many cases, there is atrophy also. In many cases, too, there is, instead of sclerosis, softening, either of the cord itself, or of its investing membranes.

The Brain. Except at the origins of the cranial nerves, there is little of interest in the morbid conditions of the brain. Effusions, opacity of the membranes, increased consistency of the cerebral substance, are what we expect and what we find; the extension of the opaque and adherent character of the arachnoid to the *base* of the brain being general. When the face is affected, the Casserian ganglion is *always*, the origin of the seventh pair *frequently*, diseased; and here the morbid changes are those of the spine, i. e. the membranes are thickened, and the nervous tissue is infiltrated by an albuminous exudation.

In the conditions of the blood, the spleen, the liver, and the kidneys, the anæsthetic agrees with the common *spedálskhed.* In those of the mucous surfaces and of the lungs, it differs. The former are *rarely*, the latter *frequently* affected; so that tubercle in the lung is as common as partial ulcerations (chiefly of the usual proportions of the mucous surfaces) are exceptional. How far the condition of the skin varies in the two diseases, may be collected from their respective histories.

The state of the eye. Bearing in mind the facial paralysis, and the diseased condition of the Casserian ganglion, the state of the eye has a value in physiology as well as in pathology. The conjunctiva of the eyeball becomes injected and dry. The secretion of tears ceases, and the lachrymal gland atrophies. The cornea shows a number of small vesicles; but rarely ulcerates. Finally the eyelid becomes thickened; ectropion occurs; and the everted palpebral conjunctiva acquires the character of skin, rather than of a mucous membrane.

We shall not stop to criticise the arrangement by which two diseases, so different in many respects as the two in question, are made varieties of one and the same species. We can only recapitulate their chief distinctions.

FIRST FORM.	SECOND FORM.
1. Premonitory stage *sometimes* acute.	1. Premonitory symptoms never *acute.*
2. Eruption, *nodular.*	2. Eruption, *bullæ.*
3. Chief characters of the disease derived from *the skin.*	3. Chief characters of the disease derived from *the nervous centres.*
4. Ulceration beginning in the *softening of the nodes.*	4. Ulceration beginning in the *cellular tissue* of the extremities.
5. Ulceration extending to the mucous surfaces.	5. Ulceration extending but slightly to the mucous surfaces.
6. Lungs *rarely* affected.	6. Lungs *often* affected.
7. Bones rarely affected.	7. Bones destroyed by necrosis.

In respect to the points of *affinity,* we take the author's classification as we find it; and for the purposes of medical practice, its nosological accuracy is sufficient. As far as concerns the prognosis, treatment, complications, and etiology, the two diseases are in the same, or nearly the same category.

Either form of *spedálskhed* must be classed amongst the hopelessly incurable diseased. Nevertheless, as in phthisis, cures at the hand of Nature, though not from Art, are authenticated (though exceptional) phenomena; so individual cases of recovery from the present malady have been observed. Of these, the first form presents the majority. In such cases the process of softening is followed by ulceration, and the ulceration by a general cicatrization of the affected surfaces. The treatmant, as may be expected, introduces a long list of remedies tried, and abandoned. Of these, the mercurial and arsenical preparations are the most mischievous; whilst good seems to have come from the use of iodine, bromine, the cod-liver oil, occasional bleedings, stimulant ointments, and stimulant baths,—such good, however, being more in the way of palliation, than of cure. Thus, stimulants applied to the skin have engendered a healthier action; bleeding has allayed the febrile excitement, the distress, and the sense of oppression; iodine and bromine have relieved the pains in the bones. In the anæsthetic forms, the palsy is too evident an indication to be overlooked. Hence those elements in the treatment of common paralysis, which, like the application of cupping-glasses, and counter-irritants along the spine, are admissible (mercurial treatment not being so), have been resorted to with as much success as could be expected—at best but little.

Complications. The two forms of *spedálskhed* may complicate each other.

Either form of *spedálskhed* may be complicated by other diseases.

a. In about one case in six, the *spedálskhed* of the first kind is accompanied with anæsthesia. Still, the anæsthesia is not the dominant symptom. In about one case in twenty, the anæsthetic *spedálskhed* may become nodular. The other morbid changes, however, proceed in their usual course.

b. Scabies, eczema, prurigo, impetigo, lichen, and pityriasis, may each or all supervene upon a case of *spedálskhed*, whether of the first or second kind; and such supervention is the rule rather than the exception. Nor does either form seem to be a protective against the eruptive exanthemata—certainly not, as was well shown on a particular occasion in the Bergen Hospital, against variola and varicella.

Age. There is hearsay evidence in favour of infants having been born with the discolorations of *spedálskhed*. There is undoubted testimony to their having sickened from it during the very first months of life. The further distribution in time of the disease, may be seen from the following tables:—

NORWEGIAN CASES.

FIRST FORM.		SECOND FORM.	
From birth to 5 years	7 cases	From birth to 5 years	3 cases
,, 5 ,, 10 ,,	19 ,,	,, 5 ,, 10 ,,	11 ,,
,, 10 ,, 15 ,,	30 ,,	,, 10 ,, 15 ,,	16 ,,
,, 15 ,, 20 ,,	32 ,,	,, 15 ,, 20 ,,	19 ,,
,, 20 ,, 30 ,,	48 ,,	,, 20 ,, 30 ,,	21 ,,
,, 30 ,, 40 ,,	32 ,,	,, 30 ,, 40 ,,	10 ,,
,, 40 ,, 50 ,,	16 ,,	,, 40 ,, 50 ,,	3 ,,
,, 50 ,, 60 ,,	4 ,,	,, 50 ,, 60 ,,	2 ,,

Above 60, none.

CASES FROM THE SOUTH OF EUROPE.

From	birth	to	5	years	0	cases.
"	5	"	10	"	2	"
"	10	"	15	"	2	"
"	15	"	20	"	5	"
"	20	"	30	"	4	"
"	30	"	40	"	3	"
"	40	"	50	"	3	"

The average duration of the disease, as determined by the patients admitted into St. George's Hospital (Bergen), between 1840 and 1847, was for the first form 9¼, for the second 18¼ years.

Etiology. Hereditary predisposition is the chief cause. For the first form, the tables of our authors trace it in 129 cases out of 145. For the second, in 58 out of 68. It follows, too, as far as a fair number of cases supports the induction, the maternal more than the paternal side. It appears, too, in the alternate, rather than in the successive generations.

DIRECT LINE.

Cases of disease in generation	1	2	3	4
1st form	13	25	1	4
2d form	7	15	0	4

COLLATERAL LINE.

Cases of disease in generation	1	2	3	4
1st form	28	40	6	10
2d form	10	18	1	3

How far is it contagious? Not at all. How far acquired? Chiefly where an otherwise healthy person has resided, under unfavorable circumstances, in localities where the disease is endemic. Thus, it is endemic in the Antilles; and one of our authors saw in a Parisian Hospital a Lyonnese, who, having resided there eight years, without sign or symptom, was attacked six years after his return. It is endemic, too, in Surinam; and a Dutch sailor who, after ten years' occasional residence there, and none at home, became a similar sufferer, was likewise seen in Amsterdam. So, also, a case was met with in Hamburgh, in the person of a Thuringian German, who had lived, some time before, in Norway. The question of the exciting causes requires a wide investigation; bad ventilation of the habitations, and inadequate nutrition, are those on which our authors seem to lay most stress; but it remains to be shown that these prevail in the other localities in which the disease is endemic.

Amount of disease of Norway. The following figures will not only show the simple medico-statistical fact of the number of persons afflicted; but they will also give us the amount of cases upon which the previous observations have been founded,—the elements of our authors' inductions.

a. For the whole of Norway, 1122 diseased individuals.

b. For one particular parish (Askevold), one in every 95 of the population.

c. For the different departments (*Amten*), as follows:

In North Trondjems-Amt	1	in 1530
Finmarkens	1	1393
South Trondjems	1	968
Stavanger	1	871
Nordlands	1	582
South Bergenhuus	1	501
Nord Bergenhuus	1	272

The clear and definite accounts of the disease, as touched, seen, and handled by the active observers who have supplied the materials of our description, have been more satisfactory than what may be called the *historical* part of the question. Not, however, because there is want of either care, learning, or criticism in the first, or introductory, part of their book; but simply because the history of opinion is less valuable than the description of phenomena. And what applies to the literary history of the aliment, applies also to its nosology.

For these reasons we have so far limited ourselves to the disease, and nothing but the disease, as to have eschewed even the nomenclature of the authors themselves; and when the reader is told that the leading terms in the nomenclature are such equivocal names as *tubercle* (applied to cutaneous disease), *elephantiasis*, and *lepra*, it is hoped that he will not accuse us of an undue realism. A comparison between the Norwegian text and the French translation (made under the eyes of Dr. Danielssen), will supply an instance in our justification. What the Norwegian in his own language describes as *knudede* (*knotted*, *nedular*, or *nodose*), he recommends his French translator to call *tuberculeux;* the truth being that the latter term, though exceptionable, is current.

What the spedálkshed is not.—It is not the *Barbadoes leg* of English authors, it is not the *Pellagra* of the Lombards, and it is not the *Radesyge*. As this latter is a Norwegian disease, and as the two have often been confounded, this third distinction is necessary. So are the other two; the *spedálskhed* having been, incorrectly, identified with both.

What it is.—It is identified, by the present writers, with the Elephantiasis described by Aretæus; with the Elephantiasis, also, to which Lucretius attributes an Egyptian origin:

> "Est elephas morbus qui circum flumina Nili
> Gignitur Ægypto in medio, neque præterea usquam."

This makes it the *Elephantiasis Græcorum*, to be carefully distinguished from the Elephantiasis Arabum, a wholly different disease. Then it is, also, the *Juzham* of such Arabic writers as described a disease other than their own. Besides which, the lepra of the middle ages, the leprosy of the Jews, the black disease of the Crimea, &c., are all identified with one another, and with the Norwegian *spedálkshed*. This is what the authors learn from the literature of the disease. We give their opinions without comment. The realities, however, of the question must be studied in the hospitals of countries other than Norway.* *Here*, better than in the description of diseases, often *nominally* rather than *really* connected, is the true identification of the Norwegian *spedálskhed* to be investigated.

And this true identification is something more than a mere matter of nomenclature. The common telluric or social conditions of the distant localities of the diseases, will supply the best key to its etiology.

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* This by no means implies that the opinions of Drs. Danielssen and Boeck have been formed upon mere descriptions of the disease, for the instances of it *out of Norway*. Such is not the case. The extent, however, to which they have *seen*, rather than read accounts of, *non*-Norwegian forms of disease, is not sufficiently explained in their work. In criticism, however, the rule *de non apparentibus et non existentibus eadem habenda est ratio*, particularly applies. The details as to how far the disease in the Greek hospitals, of the year 1849, differs from, or agrees with, the disease in the hospitals of Norway, are the matters upon which the medical world wants evidence; and, until such be given, it is not unreasonable to consider the current identifications and nomenclature as merely provis-

As it is, however, the *spedálskhed* of Norway stands thus in respect to its nosological denominations.

1. Elephantiasis Græca—*tuberculosa.*
2. Elephantiasis Græca—*anæsthetos.*

We must not omit to notice the Atlas of Plates which accompanies this work. Although not executed in the first style of art, they strike us as remarkably truthful and characteristic; and the general getting-up of the work, in regard to its typographical execution, as well as to its illustrations, does great credit to the Christiania press.

ART. IX.

On Gout; its History, its Causes, and its Cure. By WILLIAM GAIRDNER, M.D.—*London*, 1849. 12mo, pp. 240.

WE always like to know the reasons which induce a practitioner to turn author. We conceive that he should feel convinced, either that he has new matter to communicate, or else that he can make some new use of old and acknowledged facts.

We are far from asserting that Dr. Gairdner cannot allege both these pleas in his behalf; the following paragraphs will, however, best explain the object he had in view in inditing the volume now before us, on the subject which he has selected:

> "In the earliest years of my professional life, my mind was frequently called to its consideration [that of gout], to the observation of its various forms, the unravelling of its strange and confusing associations with other known forms of disease, and meditation on its cause and nature. I well remember how often I was perplexed by its obscure indications, how often I was surprised to discover it lurking unsuspected in the system, disturbing the healthy functions, and how much I was puzzled by seeing the symptoms of other diseases swayed from their natural and ordinary course in consequence of the intermixture of gout. The records of medical science afforded a very imperfect solution of many of these difficulties. . . . It is true, as might be expected, that a practising physician of the present day will scarcely find his attention arrested by a circumstance or symptom of this disease, unrecorded by his predecessors; yet it is equally certain that, in the doubts which assail his mind, he will often turn in vain to their writings for the solution of his difficulties." (pp. 2-3.)

In referring to the most recent writers on gout (he seems especially to allude to Drs. Holland and Garrod, as we shall presently see), he expresses his mortification not to discover reflected in their minds certain observations and thoughts of his own.

> "What these are will sufficiently appear in the following pages. Whether my interpretations are true or false, my contemporaries must judge. But believing it may be of use to promulgate opinions earnestly and honestly formed, not so much from reading as from observation and meditation, I venture, with diffidence indeed, to add another volume to the many already written on this subject." (p. 4.)

Had we previously felt inclined to exercise our critical functions even somewhat severely, we could not have had the heart to do so after reading this modest and unassuming statement of the cause which gave origin to this volume.

Dr. Gairdner lays much stress on the great frequency of the disease; he points out the error of not considering a man as gouty unless he has suffered under a regular fit of the disease, and expresses his belief that the gouty diathesis is often most perfectlly developed in individuals who never see its local manifestations. He combats the idea that the first attack of gout occurs for the most part in the midst of perfect health, and very justly remarks, that although its first invasion often occurs in the midst of undiminished *strength*, that state can hardly be considered a condition of *health*, under which lurk concealed the germs of so formidable and painful a disorder. Persons who sacrifice everything to their own enjoyments and pleasures,—and these are the most common victims to the disease,—most commonly overlook those incipient signs of disordered health which are the precursors of gout; and hence the common error to which we have adverted.

With regard to the premonitory signs of gout, our author expresses an opinion, that the generally-received view that the external manifestations of gout are preceded by dyspeptic symptoms, however true it may be of subsequent attacks of the established disease, by no means holds good in reference to the first invasion. The earliest sign of an approaching fit of gout to which his attention has been drawn, has been a dull pain in the left side of the chest, accompanied by inability to lie on that side, and sometimes by fluttering, irregularity, or intermission in the heart's action. These he regards as often the only precursory symptoms; and they are often removed by a gentle course of physic, a visit to any aperient mineral spring, or sometimes even by a fit of spontaneous diarrhœa.

If, however, these comparatively trivial symptoms be neglected, they give rise to very inordinate action of the heart, and to great throbbing and palpitation, frequently accompanied with a difficulty of respiration and a feeling of stifling. Tumefaction of the right hypochondria, with impeded action of the liver, and dyspepsia, quickly follow.

The next symptoms, in order of time, are those depending on impeded action of the skin. An unnatural dryness, accompanied with a sensation of heat and irritation, is soon perceptible, and is often most obvious in those parts where the sweat and sebaceous matter are most abundantly secreted, as beneath the armpits, about the nates, and in the interstices of the toes. This dryness is followed by cutaneous eruptions. "Pityriasis, psoriasis, and lepra are very common. Acne and eczema are often met with. But no cutaneous affection is more common than nettle-rash. I have known it plague its victim many months and even years, before the gout reached its paroxysm."

Amongst the anomalous symptoms which frequently distress persons with the gouty diathesis, our author notices hemicrania, neuralgia, pains affecting the eyeballs, the ears, the fauces, the teeth, and the lumbar regions. To these we might add, having, during the last two years, witnessed two such cases, intense pain in the rectum, which defied all our attempts at alleviation, but which disappeared spontaneously and in a few hours, on the supervention of a paroxysm of gout. Cases in which gouty pains occur in the pelvis are not very uncommon.

There is nothing in our author's remarks on the state of the intestinal and urinary excretions, or on the local manifestations in the joints previous to an attack of gout, that need detain us. We pass on, therefore, from the consideration of the premonitory signs, to the history of gout itself. We think he has acted wisely in recognising only two species of gout, the *regular* and the *atonic*.

The second chapter is almost entirely devoted to the "history of regular gout." We give a condensed view of the three different stages into which the disease most naturally divides itself. "They are characterised by their effect on the constitution, and are so plainly marked in the history of each individual case, that they cannot fail to impress the mind of a thoughtful practitioner.

In the first stage, the patient has experienced fits of gout at irregular and distant intervals, without any apparent diminution of his strength, or injury to his constitution. These attacks may have been severe, and may for the time have weakened him, both generally and locally; but the fury of the malady being once spent, he feels little or no inconvenienee, and usually forgets his misfortune.

The second stage is more serious. Although the attacks of gout are usually less severe than at the earlier period, their frequent returns and the diminished strength of the patient, indicate the strong hold on the constitution which the disease has obtained.

> "The diminished strength of the limbs, and particularly of the ligaments which embrace the joints, is made painfully evident to him. His step has lost its elasticity, his tread its firmness and resolution; his handwriting, once clear and strong, becomes tremulous and indistinct; he is now subject to frequent dyspepsia, and finds it necessary to regulate his diet with great care; many articles of food, formerly taken with impunity, must now be carefully avoided, any excess being attended with serious inconvenience. Intermissions of the pulse, palpitations, and faintness mark the part which the heart takes in the general disorder; the complexion loses its clearness; enlarged subcutaneous veins creep over the face; the lips are livid; the eyes bleared and the conjunctivæ loaded with blood; chronic cough, with ropy expectoration, proceeding generally from the bronchi, torments him and destroys his rest. Slight variations of temperature affect him, and everything denotes a weakened frame and an altered being.
>
> "In the last melancholy stage, the patient rarely experiences a decided attack, and yet it can hardly be said that the malady is ever absent. For a very short period in this country, in summer, he obtains an intermission of suffering, but only to relapse into pain as soon as the approach of winter makes itself felt. Few articles of food now agree with him; even the simplest and lightest give rise to the most painful symptoms of indigestion. His sufferings from irregular action of the heart are now greatly increased; faintness and palpitations are his most familiar feelings; the debilitated and attenuated limbs hardly sustain him: the exercise of a carriage is the most that he can bear. Such is the state, not only of muscular, but of nervous weakness, into which he has fallen, that he dreads everything which moves about him: a rude approach throws him into a state of alarm. Men who, at former periods of life, passed their time amid contention and noise, are reduced to a pitiable condition of childish weakness." (pp. 16-8.)

These symptoms mark the condition of the patient when the fit is absent, during the three stages of gout.—The attack itself is then considered, and although the paroxysm is very accurately and graphically described by our author, there is nothing in his remarks to call for any peculiar notice.

The following observations on the variation in the degree of pain according to the part affected, are, upon the whole, supported by the results of our own experience:—

> "The ancient name of the disease (podagra) sufficiently denotes the fact that its most frequent seat is the foot. This, too, is probably the safest and least agonizing form of the disease. As it approaches nearer the centre of the body, it seems to me always to give rise to a more exquisite degree of suffering. Gout in the hand is certainly more painful than that in the foot, and when it seizes the shoulder, which it often does, it gives rise to still greater torture, especially if the breathing be thereby embarrassed. I have seldom seen more exquisite pain than from gout in the nape of the neck and in the occiput, of which I find no mention in authors, though it has repeatedly presented itself to me; and when it lays hold of the fauces, stomach, or diaphragm, the agony it occasions is well known." (p. 23.)

In his remarks on the sequelæ of gout, our author notices the mode of formation of chalk-stones around the joints, the effect of repeated attacks of the disease on the muscular and fibrous systems, on the functions of the digestive organs, and on the circulation. On the latter point he observes that, although it might naturally be expected that the heart, which sympathises so readily in all gastric affections, should exhibit signs of suffering, yet that—

> "The functional disturbance of the heart transcends anything which can be explained by the sympathy of neighbouring organs. Though the patient suffers much when the stomach is replenished with food, his complaints are hardly less when it is empty. Formerly when his digestion was rapid, he was able to pass many hours without food; he now feels faintness and failure if not frequently supplied with it, and craves the assistance of cordials to defend himself against the sensations of exhaustion. These sufferings beset him not in the day only; they often seize him in the stillness of the night. I have seen patients of this kind who had passed into a complete swoon during their sleep, and greatly alarmed their friends by their haggard appearance when they recovered from their syncope. At this stage of the disease, the pulse by its feebleness, irregularity, and intermission, always denotes the condition of the circulation." (p. 28.)

From this state of the heart, there arise defective nourishment of the brain, and defective innervation of the whole system.

> "This is demonstrated by the increasing feebleness of the whole man, his tottering gait, his frequent vertigo, his imperfection of sight and hearing, his inaptitude for mental exertion, his loss of memory and other faculties, his yawning, his listlessness, and his torpor and drowsiness after food. Hence also the increased weakness of his digestion, while it is probable that the diminished energy of the brain reacts also on the heart, augmenting the disorder of the whole system." (p. 28.)

Having thus sketched the nature of the ruin effected in the system by this disease, our author directs attention to the different ways in which Nature terminates her work.

One of these is apoplexy. Calcareous or atheromatous deposits are formed in the blood-vessels. Their friable coats can no longer bear even the diminished impetus of the blood. The great viscera are for the most part in a congested state, and the impeded circulation through them forces an unnatural flow towards the head and brain, and apoplexy is a natural result.

Another termination of gout, in women, is menorrhagia, at the age when they cease to menstruate. The discharge of blood often serves the purpose of a vicarious disease, and effects a cure; but there are cases, especially in women of loose fibre, of indolent life, and of self-indulgent habits in matters of diet, in whom it goes the length of extreme and dangerous flooding.

Sanguineous discharges from the bowels constitute a far more frequent termination of gout. They may be mere hemorrhoidal bleedings, or they may arise from the vessels of the portal system.

> "These terminations—apoplexy, menorrhagia, hemorrhoids, and melæna—are but varieties of the same affection. The seat is different, the disorder is the same. Hæmaturia is often mentioned as a consequence of gout. It is rare, even as a symptom. I never saw it terminate the disease. Hemorrhoids, indeed, and menorrhagia, though they frequently put an end to gout, seldom do so after the manner of apoplexy and melæna, by putting an end to life, but by bringing on the next, the most common, and the most alarming occurrence in gout—viz. dropsy.
>
> "The most usual forms of dropsy in gouty subjects are hydrothorax and ascites, caused by the imperfect functions of the great excreting organs, the liver and the kidneys in this, and by the disturbance of the heart in that form of the disease. General dropsy, or anasarca, is much more rarely seen in gout. . . The commencement of the dropsical affection is obscure, and the attack often evanescent. It is very common to observe a manifest fluctuation, which has disappeared the next day. It is not unusual to see a gouty patient oppressed with what he calls his asthma, and to receive plain indication, through the stethoscope, of the presence of liquid in the chest, and yet to find these symptoms disappear in a few hours. This is easily explained by relief given to the action of the heart." (pp. 32-3.)

In addition to the terminations of gout, which are accompanied with alterations of structure and destruction of organs, there are others in which, as Dr. Gairdner believes, gout is the cause of death, without any of the intervening processes to which we have alluded. Such are the cases of sudden death so often occurring in gouty persons, and usually referred to gout in the brain or gout in the heart. Our author considers that many of these cases are only syncopes, too profound and too long continued; and gives some instructive cases confirmatory of these views. In reference to the sudden deaths occurring in gout, we are glad to see that he lays due stress on fatty degeneration of the heart, as a frequent accompaniment, if not a consequence, of the gouty diathesis.

There is not much in the third chapter to detain us. It is devoted to the history of atonic gout, the only variety of irregular gout which our author recognises. There is, we think, important matter for consideration in the following distinction between two forms of atonic gout.

> "I am inclined to make a subsidiary distinction between that atonic gout which arises in a frame naturally feeble, and that which exhibits itself in persons weakened by debauchery and excess, or worn out by the cares, fatigues, and accidents of life. The latter form of atonic gout I have never witnessed under forty years of age; the former may, I think, be seen even in infancy: one is the result of external circumstances; the other springs from within, is sown with the seed, and ripens with the man." (p. 53.)

There are many points in which the history of atonic gout differs from that of the regular disease. Instead of manifesting itself by disturbance of the circulation, it first shows itself in gastric affections. Dyspepsia, gastrodynia, and flatulency are ordinarily present; the bowels are confined, while, at the same time, there are occasional attacks of diarrhœa. The nervous system is deeply affected. The patient complains of a general sense of uneasiness, sometimes referred to one part, sometimes to another, which keeps him in continual alarm. He takes very serious views of his own case, and talks to his friends of his approaching death. He often suffers from hemicrania, pains in the scalp and occiput, stitches in the side and difficulty of breathing, with copious mucous expectoration. These and other anomalous symptoms often go on for a long time, without proceeding to any local indication of the disease which is the actual cause of all this disturbance. They are occasionally relieved by a regular fit of gout; but the cases of atonic gout which never reach a paroxysm are extremely common, and the relief following a fit is by no means comparable with that obtained in regular gout. Sometimes, indeed, as our author truly remarks, the sufferings of the patient appear aggravated by the fit; the same habit which prevents the attack making the paroxysm lingering.

We willingly make room for the following remarks on so-called metastatic gout.

> "The other supposed varieties of irregular gout, are, for the most part, only forms of the atonic disease, and it is this which constitutes their great danger. When, owing to feebleness of constitution, the gout declares itself in one of the great viscera of the body, or is removed from the limbs to the stomach, heart, or other great central organ, in consequence of exhaustion, there can be little doubt of the serious risk of the patient. If the stomach be the part selected for attack, it commonly announces itself by sudden and violent spasm, or what is called cramp. This is accompanied by great sense of heat, sickness, and vomiting, hiccup, and faintness. The vomiting consists at first of mucus and serous matters, which, unless relief be given, become darker, and finally assume the colour and consistence of the well-known coffee-ground discharge, which is not unfrequently mixed with copious ejections of blood. The patient rarely survives this state of things. When the gout is translated to the heart, the first symptom is often profound syncope; it is also sometimes the last. The patient expires not after the manner o the sudden deaths already referred to, but under a severe and griping spasm of the heart. If he survive, he is seized with violent palpitation and tumult on the left side of the chest, deep and dull but yet great pain of the heart, short and laborious breathing, and orthopnœa. These last symptoms generally continue days after the fainting and palpitation have been removed, and are for the most part attended by cough and copious expectoration. It is long before the patient feels anything like his former stability of health, and he frequently remains ever afterwards a shattered and enfeebled being.
>
> "If I may trust my own experience, the metastasis of gout more frequently takes place to the head than to any other part. It is usually stated that it shows itself in the common forms of apoplexy and paralysis. I have found these the rarest forms of the disease. I have more commonly seen a kind of stupor, in which the patient preserves his senses of hearing and sight, but loses his consciousness of persons and circumstances, place and time. He knows no one about him, not even his own family. His utterance is imperfect or altogether lost; he seems like a person entranced; his eyes are vacant and staring; his pulse is full and hard; he understands some of the things said to him, and will do as he is bid, if that which is demanded of him may be easily and quickly done. When asked to do so, he will hold out his hand or show his tongue, but is unable to comprehend any lengthened phrase. He probably hears only one word of a sentence, and does not know any thing or person around him, unless his attention be forcibly called and pointed to the object; yet he smiles stupidly on all, and seems conscious of his own infirmity. Such is, according to my observation, the common form of metastasis of gout to the brain, in which it is not difficult to discern the first stage of oppression. If it proceed to complete apoplexy, the symptoms do not vary from those of its ordinary form. When cerebral disturbances occur, it will generally be found that the urinary and hepatic secretions are either totally or partially suppressed." (pp. 55-58.)

On the fourth and fifth chapters we shall touch very lightly, although they probably cost the author much labour and consideration, and contain a certain amount of original matter; for we do not think that our author's chemical hypotheses are yet supported by a sufficient number of undoubted analytic results, to have a sufficient claim to reception from the critical pathologist.

Dr. Gairdner is strongly opposed to "the theory of a morbific matter," which he designates as a fashionable hypothesis—an easy and profitless explanation, which finds little countenance from physicians in general. He exhibits an equal opposition to the view that gout is dependent on disturbed digestion, which "from a consequence and a satellite may easily be erected into a cause." The "uric-acid diathesis," as a cause of gout, is then cursorily noticed, and apparently regarded by our author as altogether distinct from the "materies morbi" theory. "In order," he observes, "to establish the presence of uric acid in the circulatory fluids as the cause of gout, it would be necessary to prove that it is never absent. There is nothing, however, of which I am more perfectly satisfied than that I have often seen cases of true, regular gout, in which there was no evidence of excess of urates in the urine." Now Dr. Gairdner is here bringing forward a fact in confirmation of his theory, which, in reality, tells far more strongly in favour of the views of his opponents. It is, in a great measure, because the kidneys do *not* carry off the large amount of uric acid and urates generated in the system, that these effete matters accumulate in the blood.

The chemical conclusions regarding the production of urea and uric acid, at which he arrives, are, that they both take their origin from the blood in its passage through the lungs, during the process of respiration. When the process of oxygenation is perfect, the uric acid nearly disappears; but if circumstances occur which interfere with the due arterialization of the blood, the immediate consequence is the appearance of uric acid in the urine. For the analyses and reasoning which induce him to trust that he has convinced his readers, as well as satisfied himself, "that in gout we have not merely an increase of urates in the excretions, but an altered relation of the urea and uric acid, and that this change takes place in the early assimilation of the food during the process of respiration,"—we must refer our readers to the work itself, where the subject is discussed at very considerable length; at the same time remarking that our author's conclusion is not so much at variance with the doctrine of a "materies morbi" as he seems to suppose.

There is not much to detain us in the sixth chapter. It is principally devoted to the establishment of the proposition, that *inflammation is not an essential condition of gout.* This position he maintains by the following arguments:—by the records of certain cases in which the seizure was so sudden, and the paroxysm so rapidly disappeared, that "the conditions necessary to constitute true inflammation could assuredly neither be so rapidly created nor so speedily dispersed:" moreover, the gouty have always a languid circulation; they complain much of coldness of the extremities, and are liable to the sudden convulsive shivers described by the old physicians as *horripilatio;* now, although this state of the circulation is not altogether incompatible with inflammation, it certainly is not favorable to it. Gout, again, seldom shows itself at the period of life when men are most prone to inflammation, but attacks them in their decline, when the system is more prone to the asthenic and lingering form of disease: and, finally, were gout essentially inflammatory, it might be presumed that inflammation would be its primordial local symptom, and in this case we might fairly expect that it would sometimes run the ordinary course of phlegmonous disease. Now this is not only not the case; but there seems something in the nature of the disease, which prevents the inflammation that supervenes in gout from ever running into the suppurative process. "I never," says our author, "saw but one instance of phlegmon in gout, and I never saw a more ill-conditioned and offensive discharge."

Our author commences his seventh chapter with the remark, that, "having now, I trust, not at too great length, nor altogether unsuccessfully, discussed the question of what gout is not, we are prepared for the much more difficult and more subtle inquiry, of what it is?" Venous congestion, according to his views, is the first condition essential to the formation of the gouty diathesis; and the following is his theory of "a fit of gout," which appears to us far too mechanical.

> "The great venous canals of the body, as well as the larger arterial vessels are, endowed with a resiliency which enables them to struggle well against the flood of returning blood. This fluid then is compressed between two opposing powers, that namely which is derived from the heart and arterial system, urging it forward on its course, and, on the other hand, the antagonistic resistance of the great veins leading to the right auricle. Under this compression, I believe that the vessels give way, and that a true hemorrhage is occasioned in the part affected. If the rupture take place in a minute capillary carrying the serous portion of the blood only, œdema is the consequence; but if the burst vessel be one carrying red blood, a true ecchymosis is formed." (p. 122.)
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> "It will surely be admitted that the capillary and nutrient vessels distributed on the extreme and sentient fibrillæ of the nerves, are affected in the same manner as the larger venous trunks. I believe these distended capillaries are the real seat and cause of the painful phenomena of gout. Is it not credible that such vessels, dilated so as to admit fluids for which they were not intended, and bound down by the firm fasciæ in which gout has its usual seat, may give rise to much suffering." (p. 123.)

Passing, without remark, over the eighth chapter, which is principally devoted to the "exciting causes," we come to the more important subject of "the curability of gout." This question is discussed by our author with very great judgment. He points out very forcibly that much of the gout we see around us is attributable to mismanagement during infancy and childhood. The importance of regular exercise, duly apportioned to the individual case in quickening and strengthening the circulation, and the necessity of proper attention to the diet, are then noticed. Our author points out the fallacy of supposing that gout can be cured by starvation. "Milk diet," says our author, "has been very often recommended in gout, and always ended in disappointment." A purely farinaceous or vegetable diet is still more objectionable, and Dr. Gairdner's experience tends to show that it always greatly aggravates the patient's sufferings. As a general rule by no means devoid of exceptions, we believe that laid down by our author to be the best, viz. that "the most suitable regimen for the gouty is a mixture of animal and vegetable food, in which the former greatly predominates, but frequently administered, within the power of the stomach to digest, and of the constitution to assimilate."

With regard to the best drink for gouty persons, Dr. Gairdner incidentally notices the hasty conclusion at which some writers have arrived, that beer-drinkers are rarely attacked with gout, without their adverting to the fact that beer-drinkers are generally laborious and frugal livers, while the opulent classes alone take wine. All his personal observations in the wine countries of France lead him to the decided conviction, that the inhabitants of these districts are less gouty than the people of England. The following observations are deserving of attentive perusal:

> "I am greatly convinced that spirits are pernicious to the gouty, and have repeatedly seen much mischief result from a modern practice of prescribing brandy and water, in order to avoid the small quantity of acid to be found even in the most generous wines. Indeed, I have observed the lighter sorts of French wines, and even champagne, if taken in moderation, agree better with the gouty than those stronger wines which are usually called English. Port wine, indeed, has seemed to me the only wine which has a sure, rapid, and pernicious effect; but then it is the wine with which those who love it sit the longest." (p. 172.)

The tenth chapter is devoted to the treatment of regular gout, and abounds in sound and admirable matter. We shall endeavour to select those portions which seem of the greatest practical value. It is well known that many eminent physicians have pronounced a decided opinion against the general use of remedies in gout. While, however, such men as Sydenham and Morgagni held these opinions, it does not appear from the cases of which they have left us a record, that they refused to employ remedial agents. We are glad to find our author speak sanguinely regarding the importance of treatment; for without a perfect and true faith in the powers of the *ars medica,* we maintain that no one can be a successful practitioner. After expressing an opinion that in the whole catalogue of chronic diseases, there is not one which is more amenable to treatment, and which receives greater relief at the hands of the physician than gout; he adds that—

> "It is indeed illogical to hope for its removal while the cause is permitted to remain; but the resources of modern medicine have established great mastery over the fit, and I have already shown how much the diathesis and morbid tendency may be obliterated.......The time is undoubtedly arrived, when the light which has been shed on pathology by the discoveries of physiology and chemistry should regulate our practice, and for ever separate the physician from the quack. This is probably more true of gout than of other diseases, and yet of none could it be less seriously affirmed in former days, which is perhaps the reason why remedies, dangerous in themselves, and used without guide or principle, were rejected by wise and great men." (p. 179.)

The first remedy discussed is bloodletting. Unless there be inflammation of some important organ, our author is strongly opposed to ordinary venesection. Those who prescribe such bloodletting as is usually necessary to subdue inflammation, will not fail, observes our author, soon to discover, particularly in London practice, that they have sacrificed their best resource in the treatment, namely, the strength and stamina of the patient, and have made a lengthened and distressing case, when they march to make a short and brilliant cure. Depletion is, in every way, contra-indicated. There is, however, a manner in which this remedy may be employed, by which the over-loaded heart and vessels may be relieved, without entailing the evils to which we have alluded. Dr Gairdner declares himself a strong advocate for the employment of small bleedings, as recommended by the late Dr. Parry of Bath.

"I believe," he observes, "that instead of being debilitated, they may be ranked

> with tonics, on account of the cheerfulness, energy, and sense of power they suddenly restore to persons oppressed by a state of plethora. They most beneficially, too, supplant the use of purgatives, which are very often noxious in gout, and attended with considerable risk . . . . .
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> "It may seem absurd to open a vein, in order to abstract from three to six ounces of blood; but they will not say so who have made trial of this method, and seen the great and speedy relief it frequently affords. . . . . .
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> "It is well, however, not to conceal from ourselves the truth, that this remedy is by no means to be recommended to those who will not submit to the necessary restriction. If we give a speedy relief to the system, and place in a condition fit for use and enjoyment the organs of a self-indulgent individual, we have only given a momentary ease, at the expense of great and by no means transient disadvantage. The patient will in all probability repeat the practice as often as he feels the smallest occasion for its employment, and will live to suffer more serious evils than he would have endured, had the disease been allowed to run its course. . . . . But I have repeatedly used this remedy with the happiest consequences, in the case of men who were affected with symptoms of incipient gout, in the midst of the heaviest occupations of life. I was once sent for to see a gentleman, who, at the time of his seizure, had given notice to bring forward great public business in Parliament. He had been bled before in similar circumstances, but had suffered so much afterwards, that he was very averse to return to the use of the same remedy. On hearing my explanation, he consented to lose four ounces of blood. This small quantity was quite sufficient to relieve the system. He made his speech with great facility; and told me, two years afterwards, that he had not for ten years previously enjoyed such uninterrupted good health. I ought, however, to add, that he was a person who could place restraint upon his desires." (pp. 184-7.)

We believe that when some considerable degree of vigour is present (and this is generally met with in the early stages of regular gout), this mode of treatment is well worthy of a trial! Dr. Gairdner himself, however, frankly acknowledges (notwithstanding his assertion at page 184, that small bleedings should be ranked with tonics), that he considers it wholly inapplicable to cases of gout in an impaired or defective constitution.

We will only add, in reference to this subject, that our author usually prefers ordering the blood to be taken from the arm; but in cases where there is much suffering in the head, he recommends that it should be taken by cupping from the nape of the neck.

With regard to the admissibility of purgatives in gout, after noticing the opinions of Sydenham, Mead, Boerhaave, Morgagni, Hoffman, and some more modern physicians, our author very judiciously remarks:

> "But though I would unhesitatingly and earnestly dissuade from the free use of drastic purgatives, I conceive it to be a great error to carry the dread of purging so far as was done by Sydenham. Laxatives are essential in gout; even when patients lead a most abstemious life, it is necessary that the bowels should be occasionally relieved by medicine. The effect of the disease is to lock up the secretions and suppress the evacuations. . . . . Much care is necessary in the selection of these remedies. For some years past I have made little use of the neutral salts as aperients in gout. The profuse watery evacuations to which they give rise are, I think, injurious. The warm and even the more powerful vegetable aperients, such as senna, rhubarb, aloes, jalap, and scammony, seem to me far better adapted to the constitution of the gouty. They may be given with great advantage in the form of tincture, and also associated with the warm aromatics and tonic bitters." (p. 192.)

Our author judiciously points out the care that is required in treating the atonic forms of gout, and shows that, generally speaking, as the disease gives way, gentler and gentler remedies are required. "At this period, indeed," he observes, "it will often be found that the smallest doses of laxative medicine cannot be borne, and drastic purgatives may produce serious accidents. In fact, as the paroxysm wears off, secretion returns, and the excreted fluids having found their way to their accustomed and natural channels, aperients become less necessary."

Although as we have already shown, Dr. Gairdner objects to the use of neutral salts as purgatives, he advocates their employment in small doses as diuretics. Half-drachm doses of the alkaline phosphates, citrates, or tartrates, frequently repeated, aid much in mitigating the pain and assuaging the general irritation which accompanies the paroxysm. Whether this beneficial result be due to the power which these salts possess of dissolving the water, or to their influence on the nervous system, is doubtful.

The following very decided opinion is recorded against the administration of the alkalies and earthy carbonates.

> "As remedies, they cannot be esteemed of the smallest account, and they will much disappoint those even who look to them for any signal relief of the symptoms. . . . Notwithstanding the confidence with which they are recommended, I do not hesitate to pronounce them, in most cases, wholly inefficacious, and not at all durable in their effect on those they appear to relieve. I never saw the uric acid of the urine disappear under their use, or even in any marked degree diminish; and I have seen it vanish under the influence of the neutral salts—the phosphates, the tartrates, and the citrates of potass and soda, when it had resisted all change from the employment of carbonates." (p. 195.)

Tonics meet with their deserved praise at our author's hands. Used at the proper period, and with due attention to hygienic precautions, they can be hardly too highly extolled. It is not only at the close of the fit that they are useful, but in all those forms of lingering and atonic gout which affect the distant parts of the body with irregular and flying pains. There is a form of the disease, chiefly seen in old people, which is manifested by swollen articulations (most commonly of the hands), with slight derangement of the stomach, faltering in the action of the heart, and intermission of the pulse, for which our author finds iron the only serviceable remedy.

After firing a passing shot at the "cold-water cure," Dr. Gairdner arrives at the consideration of colchicum. We shall select a few of his most important practical remarks on this subject.

> "There is no doubt," he observes, "that colchicum is one of those drugs whose claim to be considered specific is well established. Its effect in freeing the body from disease bears no adequate relation to its immediate visible and tangible, or, as it has been called, its physiological effect upon the system. . . . Colchicum never more effectually relieves the patient, than when it acts silently and peacefully, without producing any evacuation whatever, or in any way disturbing the patient's comfort and ease.
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> "The *modus operandi* of this remedy is not wholly involved in mystery. Dr. Douglas Maclagan, Professor Chelius, and Dr. Lewins have demonstrated that it causes a more copious discharge of urea from the system; and I have found, in repeated investigations, that the increase of urea was attended by a great diminution of the urates in the urine." (p. 201.)
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> "The cases to which colchicum is most applicable are, without doubt, those of the regular disease, without injury of organs. If there be injury of tissue, so as to ue a destruction of function of any considerable portion of the kidney or liver,

the relief to be obtained from colchicum will be problematical. The cases, too, of atonic gout certainly receive less relief from this medicine, and some of them are so little influenced by it as by no means to compensate for the low and depressing feelings it often creates. These effects may, however, be much obviated by combining it with warm aromatic tinctures and waters, and with the vegetable laxatives. The latter do not in the least destroy the specific action of colchicum, but, on the contrary, much promote it." (p. 204.)

The many extracts we have made from Dr. Gairdner's volume will probably be deemed a strong evidence of the value we attach to its contents. It is essentially a practical work, and may be consulted with equal service by the student and the old practitioner. The former will learn from it all that mere books can teach him regarding the natural history and the rational treatment of one of our most distressing disorders; the latter cannot fail to recognise in it the work of an excellent observer and a good describer of disease, and the hand of a practical and philosophic physician. We are much mistaken if this unassuming little volume does not assume a permanent and honorable position in British medical literature.

Art. X.

A Treatise on Diseases of the Bones. By Edward Stanley, F.R.S., President of the Royal College of Surgeons of England, and Surgeon to St. Bartholomew's Hospital.—*London*, 1849. 8vo, pp. 368.

We believe the world—i. e. our world, the professional—has long been in expectation of the work which heads the present article; and the deferred fulfilment of what was known to be the intention of the author, together with the large field of observation at his disposal and the accumulated experience of many years, have naturally enhanced the public anticipation of something exceeding the average character of our medical literature; and we are happy in being able to express our own conviction that this impression has been fairly realized.

We acknowledge that our feeling at first was that of disappointment at the small size of the volume which comprised the results of Mr. Stanley's ample experience; not that we are by any means disposed to class ourselves with that large category of writers, who seem to make bulk their standard of merit, and verbosity their standard of style; but we wondered how such a subject could be handled satisfactorily in so limited a space. A passage in our author's preface, however, has quite reconciled us to the course he preferred to follow, viz. that of confining himself principally to the interpretation of the facts he had collected, so as to deduce those conclusions from them which he considered their value to justify. This, therefore, explains why "the size of the volume bears no proportion to the number of the facts out of which it is constructed."

Simultaneously with the present volume, another (by the same author) was issued from the press, containing 'Illustrations of the Effects of Disease and Injury of the Bones;" but, with the exception of certain references from the one to the other, "the two works are wholly distinct," the volume of Illustrations containing, with the description of the plates, full explanations of the subjects to which they relate. We shall, therefore, defer our notice of the latter volume to a future opportunity, when probably a second issue will have satisfied the demand which has already absorbed the limited number of copies which constituted the first edition of the work.

Mr. Stanley's special interest in this subject was first awakened, he informs us, by the admirable lectures of his teacher, Mr. Abernethy, on the Diseases of Bone. The duration of this interest, and the time consumed in bringing the fruits to maturity, may be estimated as extending through the whole professional life of the author, from his pupilage even to his attainment of the highest honour which can be conferred on standing and merit in the surgical department of our profession, that of President of the Royal College of Surgeons;—a happy year, by the way, to have selected for the issue of a work, on the character of which its author no doubt expects to ground his principal hope of posthumous reputation. Through this lengthened period, no one systematic treatise on the diseases of bones has emanated from the press, either at home or abroad; a fair indication of the difficulty of the subject in an age teeming with literature—good, bad, and indifferent, in well-ploughed as well as unbroken ground. This, however, Mr. Stanley must not regard as a disadvantage to himself; on the contrary, it is a rare privilege in coming before the public now-a-days; and we believe he has availed himself of the special advantage, under the circumstances, of laying under contribution, wherever they were likely to answer his purpose, the scattered communications which are to be met with in works which treat incidentally of the subject under consideration, as well as in isolated monographs and in papers published in the transactions of societies, and in the periodicals and journals of medical literature.

The volume is commenced by an introductory chapter, which is succeeded by a brief tabular arrangement of the subjects for consideration, and a very copious table of contents. We shall direct our readers' attention to the short introductory section containing the author's "General considerations on the Diseases of Bone," before we proceed to an analysis of the rest of the work.

The first notice of the analogy in the morbid changes of bone and of the soft parts of the body is attributed by Mr. Stanley, and we believe correctly to his predecessor on the same subject, J. L. Petit. This view was adopted and more largely generalized on by Hunter, and subsequently by Abernethy: it constitutes also the basis of the present treatise. The structure and organization of the osseous framework so far modifies this analogy, as to render all the morbid changes to which it is obnoxious more tardy in their progress; and this, as our author remarks, is the case whether the process tend to the advance or recession of the disease.

Though the vascularity and sensibility of healthy bone are comparatively limited, yet it readily inflames and becomes highly sensitive; and we perceive that Mr. Stanley attributes a larger share in the reparation of fractures to the osseous tissue itself, than to either the periosteum or medullary membrane. We believe he is correct in this opinion, though we are not quite so satisfied that the sensibility of the same tissue is ever correspondingly exalted. The suffering manifested by patients under the use of the trephine or saw, when employed to divide inflamed bone, varies very considerably, and is not conclusive of the point in question, inasmuch as the membranes and surrounding inflamed soft parts are necessarily subjected to great violence; and, moreover, every surgeon knows the alarm that is occasioned by the sound of the saw, and the pain expressed, from the vulgar dread of the operation, even where it is not felt.

Bone is not exempt from congenital defects of outward form and internal organization ; and the mysterious influence of symmetry in disease, in some instances affects the osseous system as well as the soft parts. In illustration of these points our author refers to a specimen, in his own Hospital Museum, of vascular nævus affecting the bones of the cranium and face, as well as the soft parts ; and to another in the College Museum, in which there is a perfect symmetry in the effects of periosteal inflammation, in the pelvis of a lion, both sides of which are affected in a precisely similar way, even to the repetition of every roughness and hollow. The existence of symmetrical exostoses is, we take it, more rare even than that of the products of more active vascular excitement. Other changes in the elementary arrangement and constituents of bone, concurrently with similar changes in the soft parts, are referred to by our author, such as the diminution of the earthy phosphates, and generation of other characteristic products, in gouty constitutions.

Morbid ossifications and osseous productions are arranged under the following heads. We give the author's classification in an abbreviated form.

> " 1. Unorganized masses of calcareous salts, found in various tumours, especially in the fibrous tumours of the uterus ; also constituting the apparent ossifications in the coats of arteries
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> " 2. Ossifications of original tissues, as of fibrous membrane, tendon, muscle, &c. These are, probably, but the ossifications of one tissue, the cellular, a component of all these structures. The fibrous membranes are remarkably prone to ossification, owing partly to the character of the organization of this tissue ; but its vital properties, and its locality in connexion with the purposes it serves, are also to be taken into consideration, in explanation of the exception that some fibrous membranes, as the muscular aponeuroses, &c., very rarely ossify.
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> " 3. Growths of perfect bone, which are of three kinds : viz. circumscribed hypertrophy, usually cancellous, and not preceded by cartilage ; the genuine exostosis, which is preceded by the formation of cartilage, and innocent in its nature ; and a third variety, which presents peculiarities in respect to its composition and character, some of which exhibit features of malignancy ; such as the osteoid tumour of Müller." (p. xiv.)

At the close of the introductory section, Mr. Stanley makes a casual remark respecting the reparation of bone in the human subject, which differs from the conclusions of some other observers, whilst it accords with those of Mr. Paget. (Vol. IV, p. 430.) This remark is elicited by the comparison between the process of repair in man and in the lower animals ; and in consequence of the difference which he has observed in experiments on the latter, he seems to think that but little reliance is to be placed on that mode of investigation for the elucidation of this interesting subject.

> " Around the fractured bone of an animal," he remarks, " the deposit of cartilaginous and osseous substance, which has been designated provisional callus, is of uniform occurrence. But, in the human subject, no such cartilaginous and osseous deposit uniformly takes place around the fractured bone ; here, therefore, it is not an essential part of the reparative process." (p. xvii.)

As regards the condition and circumstances attendant on necrosis artificially produced, and those accompanying loss of vitality gradually induced, and involving primarily or secondarily more or less mischief to the neighbouring textures, we can readily conceive that the parallel would be of a nature to lead to erroneous results : but, *à priori*, we should scarcely have anticipated such a discrepancy as Mr. Stanley affirms to exist, where a simple fracture, from force similarly applied, was the subject of comparison. We have not, however, tested it by experiments for ourselves, and are not, therefore, in a position to combat our author's conclusions, on the same valid grounds as he makes the assertion.

These preliminary questions being disposed of, the next page introduces to us the arrangement of the subject into which the body of the work is divided. There are four parts, each being subdivided into chapters. The first contains the following affections of bone : hypertrophy, atrophy, neuralgia, inflammation, enlargement, suppuration, caries, ulceration, necrosis. The second is devoted to tumours of various kinds. The third includes rickets, mollities and fragilitas ossium, scrofula, hard carcinoma and melanosis. And the fourth part comprises morbid growths from the jaws, diseases of the bones of the spine, and diseases of the periosteum. Then a " table of contents," extending through twelve pages of small type, and likewise divided into parts and chapters corresponding to the preceding " arrangement," constitutes a copious and readily available index for those who may wish to consult the volume as one of reference. In our notice of the various divisions of the work, it will of course be impracticable for us to give a *full* analysis of all that it contains ; but we shall endeavour to do justice to the importance of the subjects it treats of, and the ability with which they are handled, by a survey of each of the chapters separately, dwelling on some, and more cursorily passing by others, as their relative interest may prompt us. This task will not be the less agreeable from the limited scope for criticism afforded to us ; and we trust the appetites of our readers will be sufficiently healthy to consume our dish, without the admixture of the piquant sauce aforesaid.—First, then, of the results of the augmented and diminished nutrition of bone.

Hypertrophy of bone, our author defines as consisting in " an increase of its size from the augmentation of its healthy tissue ;" the condition being in fact, precisely identical with that which is met with in many of the softer tissues of the body. This is a common affection in long bones, though very much more frequently influencing their thickness than their length ; and we believe that longitudinal hypertrophy is always accompanied by augmented growth in the circumference of the bone affected ; though the converse of this constitutes the rare exception instead of the rule. Mr. Stanley has met with some instances of hypertrophy of bones in their thickness and length, and cites three cases in patients admitted into St. Bartholomew's Hospital, in two of which the tibia of one leg alone is mentioned as having been the seat of the affection, and in the third the tibiæ and fibulæ of both limbs were involved. How the fibulæ in the former cases accommodated themselves in their new relations to their altered fellows, we are not told ; at any rate no notice is taken of them. In all these cases, apparently, a scrofulous diathesis coexisted ; a condition of the system which, our author remarks, characterised other examples of the affection which he had met with in the long bones of the upper extremity. With respect to the treatment of this result of hypernutrition, nothing new or encouraging is offered to our notice. All pathologists are, we believe, agreed that remedies are inert, as regards their influence on bone once enlarged; and we quite agree with Mr. Stanley, as far as our own experience has taught us, that the benefit to be expected from either the external or internal use of iodine, is limited, in these cases, to the control of such morbid condition of the periosteum as may have been superinduced by the original disease; at least, such we take to be his meaning when he speaks of their influence in "removing the irritation of the periosteum" covering the affected bones.

Before leaving the subject of hypertrophy, a short space is devoted to that condition as affecting the bones of the face; and we here avail ourselves of the opportunity of allowing our author to speak for himself on the subject of treatment. The passage presents a fair sample of his style, and contains a valuable practical hint:

> "With respect to the treatment of the hypertrophied bones of the face, I can only state, that medicines have no influence upon the disease. The only practical consideration that can arise respecting it, is whether the enlarged bones should be removed by operation, when the disease is manifestly increasing, with its deformity and other attendant evils; and when, on this ground, the propriety of an operation is considered, there will probably be difficulty in determining the exact boundaries between the healthy and diseased bones, since the extent of the latter is not indicated by any morbid change in the soft parts covering them. I venture, however, to state, that in such cases it need not be a rule from which there should be no deviation, that, as the only justifiable ground of operation, the whole of the diseased parts must be taken away. I know, that in cases where only part of the hypertrophied bones has been removed, the wound has healed soundly over the remaining portion of them; and it has not in such instances appeared that the operation was followed by an increase of the disease." (p. 5.)

The different forms of *Atrophy of bone* noticed by our author are, that in which there is simply diminution in size, that in which there is thinning of the walls and widening of the cells, and that in which the cancellous texture wholly disappears. General or local defective nutrition and inaction are the most prominent causes of atrophy of bones. Deprivation of blood, from laceration of the medullary artery in fracture of a long bone, is an illustration of atrophy from defective local nutrition, as pointed out by Mr. Curling, in an able paper communicated to the Medico-Chirurgical Society, and referred to by Mr. Stanley; and the osseous system is not exempted from that wasting which affects the muscles, in anchylosis of an important joint. And this condition resulting from the last-mentioned cause, is accompanied by softening, which our author, in company with the most accurate observers who have investigated the subject, refers to "a change in the arrangement and mode of connexion of its constituent parts," rather than to any actual "diminution of the earthy matter of the affected bone." Arrested growth from disuse is also classed under this head; and the lower jaw is not unfrequently affected thus. Mr. Stanley mentions having seen many such cases, in which the cause of the mischief had been the destruction of the surrounding soft parts from excessive salivation in early life. We have noticed a similar effect accompanied by distortion, where the lower jaw has been rendered all but immoveable from the contraction consequent on severe burn. In some instances of arrested growth of the bones of one leg, giving rise to talipes equinis, our author has found section of the tendo Achillis followed by the best results, the heel being made, by proper after treatment, "to rest firmly and easily on the ground." We apprehend that the necessity for an artificial lengthening of the limb, by a high shoe or otherwise, can scarcely be superseded by this operation, though we might reasonably infer that such was intended to be Mr. Stanley's meaning, if we accept the text litterally. Such cases require great discrimination, or they are very likely (as we believe not unfrequently occurs) to terminate in disappointment to both surgeon and patient. The talipes is not the consequence, in these instances, of contracted muscle, but merely of the necessary effort to reach the ground; and relief cannot therefore be expected, as in cases where the bones are of their natural length.

The succeeding chapter is brief, and devoted to *Neuralgia of bone*, which our author regards as a condition "unaccompanied by inflammation or other organic change in its tissues;" in fact, analogous to neuralgia of other structures. This is a mysterious affection at all times, and the term used to designate it is, in our opinion, much abused. We are, therefore, not surprised to find the same questionable and indefinite character attached to it, when bone is described as the seat of affection. That many cases of low, subacute inflammation, or other vascular disturbance, are frequently set down as neuralgia, we are assured; in many instances the symptoms have their origin in some distant functional disturbance of a nervous centre, probably referable to the stomach, liver, or uterus, in the first place; whilst but few are really local affections, except as regards the most prominent and pressing symptoms, the pain. Such being our opinion, we are not astonished to learn that Mr. Stanley's experience has led him to place but little confidence in local remedies, whether depletory, sedative, or counter-irritant; opium, as might be expected for the same reason, has been more effective, as long as the system was kept under its influence. The test of the efficacy of remedies on which our author seems to place most reliance as a means of diagnosis between neuralgia and inflammation, is after all but a questionable one; and its value must depend on the cautious discrimination of the investigator, and a careful weighing of the considerations to which we have just alluded. We cannot subscribe to the opinion of Mr. Stanley, that the first case quoted by him was one of neuralgia of the femur, there being so little ground, on his own showing, for arriving at such a conclusion; and Mr. Bayntin's case subsequently quoted, is not much more satisfactory to our mind. Injury was apparently the exciting cause of the mischief, in both cases; and there was, likewise, unmistakeable evidence of increased vascular action (not to call it inflammation) in each. The ultimate recovery of these patients, and the resistance of the disease to all medical treatment, seem to constitute the chief, if not the only, grounds for concluding that the affection was neuralgic. We should much like to have known the exact history and condition of the uterine organs in these cases, for they both occurred in young women of 29; and we cannot help suspecting that some derangement of their functions may have operated as a *predisposing* cause to these affections. In the third and last case cited, likewise occurring in a young female, the tibia was the seat of the suffering, the knee was bent and fixed, and amputation was resorted to; equivocal signs of disease existed both in the cancellous structure of the condyles of the femur and the head of the tibia, as well as in the cartilaginous surface of the joint. Altogether we do not think our author clearly makes out his case for simple neuralgia of bone, if the instances quoted are the best illustrations he can adduce of the affection denoted by this indefinite name.

Inflammation of bone and its consequences constitute, of course an important section of the work we are reviewing. Though bone presents, in a healthy state, but a moderate amount of vascularity, and but trifling sensibility. both of these conditions are exalted, especially the former, under inflammation of its tissue; and the products supplied by the distended vessels are not less characteristic of their excited action, than when more highly-vitalized and soft parts are similarly affected.

Enlargement, says our author, is the most general effect of inflammation of the tissues of bone; and the expansion observed, under these circumstances, is analogous to the inflammatory swelling of soft parts. He adds, that his recent and more extended researches on the subject have satisfied him, "that the simple swelling of bone, from expansion of its tissue, is one of the most frequent alterations to which it is liable." Local injury seems to be a common cause of this result, the condyles of the fémur and the head of the tibia being the most frequent seat of it. Enlargement of bone, with induration, is the effect of more prolonged inflammation; and this, our author informs us, may occur in either the cancellous or compact structure. Of this condition he has found rheumatism to be the most prolific source,—a circumstance with which few practitioners are not familiar. The symmetrical nature of these attacks and their consequences is singular, and scarcely less familiar. Few would venture to differ from our author in his experience of the utter inefficacy of any medicinal interference, when once enlargement with induration has taken place. But simple swelling of the osseous tissue (we do not refer to node or the product of periosteal inflammation) is, we believe, remedial by the employment of appropriate and timely treatment. We quote the following passage, principally for the sake of an observation by that accurate microscopist, Mr. Quekett, on the condition presented by the indurated articular ends of bones:

> "From long enduring rheumatic inflammation in any of the large joints, more especially in the hip, the cartilages are absorbed, and the bones become indurated, enlarged, and altered in their form, probably from the pressure they have received in an early stage of the disease, when their texture was softened by inflammation; thus, the head of the femur becomes broad and flattened, and of irregular figure, with corresponding changes in the acetabulum. With induration of the articular ends of bones, their surfaces, when deprived of cartilage, become smooth and polished, with a porcellaneous appearance, owing to the Haversian canals becoming filled with earthy substance." (p. 23.)

Lastly, enlargement of bone, by osseous deposits on its surface—the effect of periostitis—is treated of in this section; and then follow "some general considerations on the treatment in inflammation of bone."

This is to be conducted, says our author, on the same principles as the treatment of inflammation of soft tissues. His experience confirms the confidence we have long had in the employment of iodide of potassium, especially where syphilis is the modifying constitutional cause, and the membranes of bone the special seat of the disease. The records of Martin Hassing, of Copenhagen, on this subject are referred to, and a just tribute paid to the late Dr. Williams, of St. Thomas's Hospital, who first directed attention to this valuable agent in the treatment of secondary syphilis. Our own experience quite accords with our author's in respect of the dose, which he limits to two or three grains twice or thrice daily. Counter-irritation he regards as often useful, when there have been long-enduring and frequent inflammatory attacks in bone; but this requires caution, both as to the selection of the proper period, and the best situation for its employment.

Suppuration on bone occupies a fresh chapter, and is divided into circumscribed and diffused abscess. Illustrative cases of each form are given; but our space will not allow us to enlarge much on this subject. We must, however, find room for an extract, as illustrating an important point of diagnosis, and as exemplifying the difficulty of a subject we just now commented on.

"The neuralgic affection of bone has the following special features,—the nervous or hysteric character of the constitutional symptoms—the pain, although severe, yet not confined to a limited district of the bone, and not aggravated by motion of the part, and occasionally attacking the corresponding bone of the opposite limb; further, the pain not yielding to depletory or sedative remedies. On the other hand, the symptoms accompanying the circumscribed abscess in bone are not in general such as bespeak the nervous or hysteric character of the disease; yet upon this distinction we must not too confidently rest. The abscess in bone, especially when occurring in females, has given rise to well-marked nervous local and constitutional symptoms; and if, in combination with such nervous symptoms, there should be, as I have known to occur, thickening and tenderness of the coverings of the bone, it will be really difficult to determine whether the source of pain is exclusively a neuralgic affection of the bone, or whether there is not, at the same time, matter confined within it." (pp. 43-4.)

As the treatment of abscess in bone has been so ably handled and fully discussed by Sir B. Brodie, in his recent 'Lectures on Pathology and Surgery,' and as our author has nothing new to add on the subject, we pass by this important point. Mr. Stanley also refers to Mr. Abernethy's statement, in his 'Surgical Observations,' that he had seen several cases of suppuration of the diplöe of the cranial bones relieved by perforation of the outer table; but adds, that his own experience does not supply him with similar instances.

The term *Caries* (the subject next discussed), is restricted to the "changes which, under certain circumstances, are consequent on chronic suppuration in the cancellous texture of bone;" and a separate chapter is devoted to *Ulceration of bone.* Under the latter head, a peculiar "phagedenic ulceration of bone" is described and illustrated by cases. It is noticed as occurring most frequently in the tibia, and in men of intemperate habits who have passed the middle period of life. We pass on, however, to the chapter on *Necrosis.*

The death of any particular bone or part of a bone is the consequence of similar influencing causes to those which produce death in the soft parts; and the process of separation is analogous, though generally more tardy. For obvious reasons, necrosis is of less frequent occurrence in the cancellous than in the compact tissue of bone; and, as regards their relative liability to loss of vitality, our author gives the following order. The tibia (as usual) heads the list,—a privilege this unhappy bone seems to claim, whatever may be the nature of the disease, acute or chronic, or at any rate with but few exceptions; then the femur,—why, as Mr. Stanley remarks, does not appear at all clear; afterwarys, in succession, the humerus, flat cranial bones, lower jaw, last phalanx of a finger, clavicle, ulna, radius, fibula, scapula, upper jaw, pelvic bones, sternum, ribs. The *causes* of necrosis enumerated are, cold, injury by violence, rheumatism, scrofula, syphilis, fever. To these are added, where the jaws are the seat of the mischief, excessive salivation, and the influence of phosphorous acid vapour. Of these two causes of the death of bone, fortunately the former is less familiar to surgeons than it used to be; the latter has been only recently noticed, since the manufacture of lucifer matches has been established on so large a scale. This was first observed in Germany; but has since been recognised by many surgeons in England. The periosteum of the jaw appears to be first affected; the teeth are loosened and fall out; and then the bone loses its vitality. Our author thinks it may be a question whether the poison acts locally at once, or intermediately through the constitution. The latter is the view to which we should certainly be ourselves inclined on general considerations; but it is opposed by certain remarkable facts cited by us in our notice of the researches of Drs. Von Bibra and Geist. (Vol. I, p. 455.)

Under the head of "symptoms of necrosis," the following remark and interesting exemplification of it occur:

> "Necrosis of the shaft of a bone, through the entire circumference and thickness of its walls, is usually accompanied by the death of its medullary tissue to a corresponding extent. There are, however, instances of necrosis, the consequence of some strictly local cause, acting only on the surface of the bone, in which the walls of the bone perish, whilst the medullary tissue preserves its vitality. Such were the circumstances of the following case:—nitric acid was applied to a phagedenic ulcer in the leg; its action extended to the periosteum of the tibia, occasioning inflammation of the periosteum over nearly the whole extent of the bone. The walls of the bone, in consequence, perished; and the limb was amputated. In the examination of it, notwithstanding the death of the entire walls of the bone, the medullary tissue was found to have preserved its vitality." (pp. 81-2.)

The history of necrosis through its further stages is not traced; and the observations of Mr. Goodsir upon the separation of dead from living bone are referred. It appears that Mr. Thomas Taylor observed, some years since, that pus taken from an ulcer around an exfoliating portion of bone contained a large quantity of phosphate of lime. But the accurate record of this fact, and its publication to the profession, are certainly due to Mr. Bransby Cooper, who directed attention to it in his Lectures before the Royal College of Surgeons in 1845. It is probably by this process of solution, in part, that fragments of dead bone disappear without any sensible exfoliation: though there seems reason to believe that, in such cases, this gradual disappearance is partly due to the separation of minute and delicate scales which escape observation. This was the opinion of Miescher, who is quoted by our author. Mr. Stanley holds, in common with most modern observers, that living parts exercise no influence upon dead bone.

Under the head of "reparative processes consequent on necrosis," we have the following passage, which we extract, as bearing upon and illustrating some remarks made at an earlier part of this article:

> "If, in animals, the entire periosteum of the shaft of a bone is taken away, and lint wrapped around the bone, to prevent the reunion of its surface with the surrounding parts, the phenomena which ensue are, necrosis and exfoliation of the outer lamellæ, in the form of a complete cylinder, and the reproduction of the lost bone by ossification of the granulations arising from the exposed inner lamellæ. And from this experiment it might be concluded, that, in the human subject, certain specimens of necrosis, apparently consisting in the death of the entire shaft of

the bone, and in the production of a new bone, chiefly by the periosteum, were actually instances of necrosis affecting only the outer lamellæ, and followed by the production of new bone from the exposed surface of the inner lamellæ. But it is doubtful whether, in the human subject, the reproductive power of the tissue of bone is adequate to the formation of so great an extent of new bone. In the human subject, the reproduction of the outer lamellæ of a bone can probably be but imperfectly, if at all, effected without the aid of the periosteum." (pp. 98-9.)

Our author gives an example of the reproductive power and activity of the medullary tissue, in the case of a man whose arm was torn by machinery :

"Four inches of one side of the ulna were detached by a longitudinal fracture. Granulations, arising from exposed medullary tissue, filled the vacancy in the walls of the bone, and it appeared to be by the ossification of these granulations, that the reproduction of the lost bone was effected." (p. 99.)

When, however, the periosteum, as well as the medullary tissue, is preserved, Mr. Stanley states, that the production of new bone will chiefly ensue from the internal surface of the periosteum.

Destruction of the entire thickness and circumference of the shaft of a bone, whether limited to a portion or extended to the whole, calls upon the resources of various parts for the reparation of the mischief. These our author classes under four heads : "1, The periosteum ; 2, Portions of the original bone, detached from its surface and remaining connected with the periosteum ; 3, The articular ends of the original bone ; 4, The soft tissues around the periosteum, or around the bone, if the periosteum has been destroyed." Observations and experiments are first cited in proof of the periosteum being the *chief* agent in the regeneration of the shaft of a long bone ; but our author does not deny that, in some instances of necrosis, the production of a new bone may be from nuclei, separated with the periosteum ; and, to a limited extent, from the articular ends of the original bone (supposing the death of the shaft to extend to them). Many undoubted facts prove, further, that the vessels of the surrounding soft parts are capable of reproducing bone, even when all other sources fail, from being involved in the destructive process. The cases, which our author regards as most favorable for the reproductive process, are those in which the bone suddenly, and at once, completely perishes.

On the relative reproductive power of different bones, Mr. Stanley remarks, that necrosis of the flat bones is rarely followed by regeneration ; and that it is doubtful whether the irregularly-shaped bones are ever reproduced. Reference is made to rare cases of Desault, Syme, Wiedmann, and others, in which a large portion of the lower jaw, the scapula, clavicle, sternum, &c., were in part or wholly reproduced.

In the treatment of necrosis, our author does not differ, apparently, from his contemporaries. The chief considerations to which attention is directed, in handling a superficial necrosis, are, whether anything can be done to accelerate the exfoliation of the dead bone, or whether it should be removed by operation. In general, Mr. Stanley prefers soothing applications ; but, under the head of stimulants, muscular exercise of the affected limb is extolled. Softening the bone by the application of a mineral acid, he considers a questionable proceeding, and not calculated to hasten the separation of the necrosed fragment ; the process, indeed, is essentially a vital one, and not to be directly accelerated by chemical means. If the progress of the exfoliation be sluggish and tardy, an operation may be undertaken where the covering of soft parts is thin. The same step should be had recourse to where the necrosis is deep, as soon as the dead bone is ascertained to be loose. Cutting forceps are generally a sufficient adjunct to the saw, in effecting the requisite removal of the new bone, for the purpose of extracting the old. In necrosis of the first or second phalanx of a finger or toe, our author prefers the extraction of the dead bone to amputation of the member; and this remark applies likewise to the ungual phalanx, in which the nail and pulp may be left, though the bone be removed.

A series of cases illustrative of the preceding remarks follow, and close this chapter, which is the last of Part I of the volume All but one of these are cases of necrosis of the tibia. They present nothing particularly worthy of notice, and are such as most surgeons have met with in the course of their practice.

The Second Part of Mr. Stanley's work comprises an important subject, viz. *Tumours of bone*. A satisfactory classification of these morbid growths is a task of considerable difficulty, owing to the identity in the nature of diseased growths springing from the various parts and component tissues of bone, and also the frequent admixture or combination of several morbid products in the same tumour. The difficulty is further enhanced by the modifications which the tumour will undergo in the different stages of its growth. These and other considerations have induced our author to limit his arrangement of the tumours of bone to an enumeration of the principal products found in them; and to a historical account of certain tumours which are " definite in their characters and progress, and, besides, are of interest and importance, from the considerations, practical or pathological, belonging to them."

The principal products found in the tumours of bone are arranged under the following heads: 1, Cartilaginous substance; 2, Osseous substance, which may be healthy, or chalk-like, or resembling ivory; 3, Encephaloid or brain-like substance; 4, Fibrous substance; 5, Gelatinous substance; 6, Fatty substance; 7, Soft or vascular substance, of the character of erectile tissue; 8, Fluids of various kinds, sanguineous, serous, or gelatinous. There are also other morbid deposits, which are considered under distinct heads; viz, the material of melanosis, of hard carcinoma, and tubercle; likewise entozoa, and simple membranous cysts.

With respect, first, to cartilaginous tumours, our author remarks that they occur in the early and middle periods of life, generally growing from a single bone; and where the larger cylindrical bones are the seat of the disease, it usually springs from their outside; in the smaller bones, when thus affected, it commonly originates within. This form of tumour is of slow growth, and in general becomes stationary, both as to growth and structure, when it has attained a large size; more rarely a disorganizing process is set up, followed by ulceration of the investing soft parts and a profuse discharge. When of small size, Mr. Stanley believes that this form of tumour may be dispersed by the local employment of mercury or iodine.

Osseous tissues are divided by our author into " exostoses," ordinarily so designated, and the " osteoid tumour" of Müller. Exostoses, he remarks, have cartilage for their base and primordial structure, the bony matter being deposited in the centre of the cartilage; but the surface of their attachment to the bone is, probably, not in any instance extended. Some rare and curious cases of this common form of morbid growth from bone are cited: such are perplexing and troublesome from the symptoms they give rise to. In one instance, the author found the ulnar nerve split into two branches by a small exostosis, which penetrated it. In another case, which occurred in a hospital patient, an extostosis grew from the back of the clavicle, and occasional severe suffering, when the arm was moved, by its pressure on the axillary nerves. Mr. Mayo showed the author a patient, in whom displacement of the subclavian artery, by an exostosis on the first rib, gave rise to symptoms which induced the supposition, in the first instance, that there was an aneurism of this large arterial trunk. The interesting case recorded by Mr. Travers, in which epileptic fits were occasioned by the growth of a spiculum of bone from the inner table of the skull, is referred to. In this case the trephine was applied, and the relief was permanent.

Can the growth of an extostosis be arrested? The author states that he has witnessed the diminution of such growths under the local action of iodine and mercury; but admits that, in all probability, it was the cartilaginous base alone that was absorbed. He has not witnessed any beneficial effect from the employment of issues, though Mr. Abernethy used this remedy with advantage in a case of exostosis from the humerus. If removal by operation be decided on, Mr. Stanley very properly recommends that no portion of the exterior of the exostosis, with its cartilaginous capsule, be left. Entire extirpation is the only security against reproduction of the diseased growth.

Where these tumours spring from the neighbourhood of a large joint, as, for instance, the base of the femur (not an unfrequent position), and are of large size, considerable judgment is required in deciding on an operation, and much tact in its performance. The following case, illustrative of these points, occurred in St. Bartholomew's Hospital, and we quote it, for the same reason which, doubtless, led the author to incorporate it in his work, viz. that it may prove how important it is to exercise great discretion in undertaking and conducting the different steps of an operation of such importance.

> "A man, aged twenty-five, had an exososis growing from the lower and front part of the femur, which commenced five years previously. The tumour increasing, had of late interfered with the knee-joint, occasioning pain in it, and distension of the synovial membrane by fluid. The tumour was oblong, the long diameter of its base being in the axis of the femur, and measuring about four inches, the breadth of its base about two inches. The increase of the tumour, in such a direction that it projected into the knee-joint, induced the man to solicit its removal. Its connexions were carefully examined, with reference to the question of its being possible to remove it without injuring the joint; and it was decided that the operation might be safely undertaken.
>
> "An incision was made through the rectus and crurœus muscles to the base of the tumour, on the side most remote from the knee-joint. But in doing this, though with all possible caution, the joint was opened, and it was now discovered that the synovial membrane, in yielding to the accummulation of fluid in the joint, had extended upwards upon the tumour, and some way beyond it upon the front of the femur. With much difficulty, on account of the deep situation of the tumour, the breadth of its base, and the hardness of its texture, I effected its removal by means of a chisel and cutting forceps. The inflammatory fever, immediately con-

sequent on the operation, was not severe; but as this subsided, there was no return to health. Constitutional derangement of another kind ensued; its prominent features were rigors, collapse, pain in the head, cramps in the limbs, and extreme prostration of nervous power, and it soon became evident that suppuration had taken place through the subcutaneous cellular tissue of the whole limb, from the hip to the foot. At the end of the third week from the operation, the patient died.

"On examining the limb, a large suppurating cavity was found in the lower part of the thigh communicating with the knee-joint, the synovial membranne and cartilages of which were in great part destroyed. There was, however, a sufficient portion of the synovial membrane left to show that it had extended upwards upon the front of the femur to the extent of five inches above the articular cartilage, and consequently much beyond the limits of the exostosis." (pp. 160-1.)

In this case, the author admits, that an incorrect view was taken "of the disposition of the synovial membrane with respect to the exostosis; and, consequently, the danger of opening the knee-joint was not rightly estimated." The distension of the synovial membrane had been reduced by appropriate local remedies, but the sac had not contracted, as was anticipated to its former dimensions. We apprehend that such complete contraction, if it ever occur after inordinate distension, must be the work of a long time; and we should rather have expected the partial obliteration of the bag by deposit of fibrin on its interior, whilst it was subjected to the same local cause of irritation which had first excited the augmentation of its natural secretion.

Of Müller's osteoid tumour, which Mr. Stanley prefers distinguishing by the title "malignant osseous tumour," he has seen three instances. In all of these, the tumour of the bone was accompanied by similar morbid deposits in the adjacent and in distant absorbent glands, "converting them into chains of osseous tumours;" and, in two of the three cases, the malignancy of the disease was further marked by the production of similar growths in distant organs and tissues.

"In these tumours," observes Mr. Stanley, "the osseous substance is either of a yellow colour and ivory-like texture, or it consists of a dull white, chalk-like substance, which can be scraped or rubbed into a powder. The osseous substance is united to a soft tissue, which usually constitutes the exterior of the tumour, and besides fills the interstices in its harder constituent. The soft tissue is of a greyish-white colour, and, when examined by the microscope, is found to be fibrous. But in some instances the soft tissue of these tumors has closely resembled the firmer sort of encephaloid deposit. It was so in one case, where the osseous tumour of the tibia was combined with growths apparently of an encephaloid nature in distant parts of the body." (p. 164.)

Its characteristic features are thus enumerated:

"First. The tendency to its growth around the lower part of the femur, just above its condyles; and around the upper part of the tibia, just below its head.

"Secondly. The tendency of the tumour to assume an oblong, rather than the globular form which belongs to many other tumours of bone.

"Thirdly. The absorbent glands, when contaminated in this disease, assume the form of hard, isolated, and moveable tumours.

"This tumour closely surrounds the bone from which it grows, and consequently it is immoveable. In this particular, however, and in the firmness of its feel, it does but resemble many of the fibrous tumours of bone, from which, therefore, its distinction may not be easily established." (p. 165.)

The illustrative cases alluded to are then detailed at length; but for these we have not room.

The tumour consisting chiefly of brain-like substance, has for its synonyms, carcinoma medullare, and fungus medullaris (of Müller.) This disease the author states to be of frequent occurrence, originating within the bone, and occurring usually about the age of forty. In its progress it is accompanied either by absorption of the walls of the bone affected, or by expansion of those walls into a cyst, inclosing the new deposit: concurrent increase in the thickness of the osseous walls has been observed, though but rarely. It attains sometimes a very large size, and ultimately ulcerates at one or more points, giving issue to blood or a bleeding fungus. Mr. Stanley has known this malignant disease confounded (from certain external features they possess in common) with other diseases in or about the knee-joint; such as bursal tumour over the patella,and suppuration in the joint. To these we may add diffused aneurism in the femoral region, which we have seen twice mistaken for this disease, —of course under peculiar circumstances.

In consistence this morbid deposit varies, though not in a very remarkable degree. Our author has satisfied himself, by observation, that, in some instance, this disease is combined with unsoundness of the vascular structure of the bone, even so as to involve the whole of it. That the diagnosis of these tumours is obscure in many cases, may be gathered from the following passage which occurs in the text:

> "It is to be recollected that the encephaloid tumour of bone is, in one case, of slow, and, in another, of rapid growth: in one case attended with pain and disturbance of the health, and in another with neither of these symptoms; that in one case the coverings of the tumour feel soft throughout, in another firm in the situations where osseous substance enters into its composition: moreover, that the encephaloid matter has been found inclosed in an osseous cyst, which, in one case, was thin and crepitating, and, in another, so thick as to give the tumour the solidity of an exostosis. Surrounded by this great variety of features, it is difficult to establish for the encephaloid tumour any well-marked ground of diagnosis from other tumours growing from bone or periosteum, or appearing to do so by their situation and attachments." (p. 175.)

In these cases the question of amputation must, of course, be mainly decided by the probability of the disease being confined to the limb which it is proposed to remove. That such limitation frequently exists, the satisfactory result in many recorded cases proves; but our author admits that a large number of facts and observations are required, before we can hope to establish data which will enable the surgeon to proceed with confidence in this decided step. The earlier an operation is undertaken, the better chance, no doubt, there is for the patient.

Fibrous tumours may present various features, but are all allied in the essential characteristic of presenting the same elementary tissue, being found, our author remarks, "to yield gelatine by boiling, and to agree in their microscopic characters." Cartilage, he adds, is not a clearly-marked element in these tumours; but isolated portions of bone are frequently found intermixed with their softer constituents. They are found growing from the jaws, scapula, humerus, femur, &c.; anda re most readily confounded with tumours consisting principally of cartilage,—an error of not much importance in a practical point of view.

Of tumours composed chiefly of soft, gelatinous substance, the author narrates an example in which the phalanx of a finger was the seat of the disease, and refers to another where it was developed in a rib, the preparation of which is in the museum of St. Bartholomew's Hospital. In this form of tumour, the deposit takes place in the cancellous structure of the bones, and is (according to Mr. Paget's observation in one of the above cases) a structureless, viscid jelly; in fact, analogous to the matter of gelatiniform cancer, as observed in other tissues of the body.

Under the head of "tumours of bone composed chiefly of fatty substance," our author describes a fatty degeneration commencing in the "deposit of a yellow substance into the medullary canals of the bone," and the subsequent conversion of its structure into a "soft, crumbling, greasy substance." He regards this disease as strictly malignant in its character, possessing a tendency to spread indefinitely into, and involve the neighbouring tissues, and admitting, therefore, but little prospect of eradication by operative interference.

The erectile tumour of bone is of very rare occurrence. When the disease has been removed, together with the portion of bone from which it has originated, the cure has been complete; and the texture in the instances recorded was found to resemble that of the spleen. Mr. Stanley refers to but one case which came under his own observation: the seat of the disease was the lower jaw; and the internal structure of the morbid growth bore a close resemblance to certain nævi. The blood-tumour of bone is allied to the preceding, as regards the character of its contents and seat of its origin, though essentially different in other respects. It may result from injury or commence spontaneously: it is of slow growth, and is generally accompanied by severe pain: the articular ends of bone are its favorite seat, and it has been known to affect the tibia, femur, clavicle, and scapula.

The presence, and progressive development by numerical increase, of entozoa within a bone, gives rise to its enlargement, by expansion of its walls; and this disease has, therefore, been classed by our author amongst the tumours of bone. The deposit and generation of hydatids is not limited to bones of any particular form, and occasionally they are found in more situations than one in the same individual. An interesting case, which fell under Mr. Stanley's notice in St. Bartholomew's Hospital, is narrated by him. The patient was a middle-aged woman, with a globular, pendulous tumour depending from the right sacro-iliac symphysis. It was of five years' standing, and had been punctured before her admission. A large quantity of hydatids were discharged through a free incision, but the patient sank under the consequent constitutional irritation. On examination, the interior of the sacrum and right os innominatum were found to be the seat of the disease, and the walls of these bones were widely separated and thinned, the cavity in the former communicating with the spinal canal. On examining the acephalocysts by the aid of the microscope, the echinococcus was discovered in some of them. Mr. Keate has recorded, in the 'Medico-Chirurgical Transactions,' an interesting case of a similar disease, developed in the diplōe of the frontal bone. The sac was, in this instance also, laid open, and, after the hydatids were cleared away, the exposed surfaces were treated with escharotic lotions, and the cure was complete. This case is referred to by Mr. Stanley, in proof of the success which attended treatment similar to that which proved fatal in the instance just now spoken of. In his case, the communication of the cyst with the spinal canal was an awkward complication, and probably determined its fatal issue.

Some general considerations are now added, relative to the diagnosis of the tumours of bone; in which are laid down the broad and distinguishing characteristics by which innocent or malignant tumours may be recognised, and by which their connexions and relations may be determined. The conclusions embodied in these remarks are derived from the author's personal observation, and are, of course, valuable as hints to those whose experience is more limited. Anything short of a transcription of them would be insufficient to convey a just impression of their value; and for this, though they are short, we have not room, and therefore refer our readers to the original.

Tumours of bone which pulsate are occasionally, though rarely, met with. The amount of pulsation varies according to circumstances; for its source may be either the development of vessels or cells within the tumour, constituting an erectile tissue; or merely the proximity of a large artery. Three cases of this class of tumour have occurred in St. Bartholomew's Hospital, two originating in the upper part of the humerus, and the third in the lower part of the femur. Other cases have been communicated to Mr. Stanley, in which the tumours were of an encephaloid nature, and derived their pulsating character from the neighbourhood of large vessels. Such a case is related by Mr. Lawrence, in the 17th volume of the 'Medico-Chirurgical Transactions.' Our author refers to a case reported in the 'Edinburgh Medical and Surgical Journal' for 1834, in which the subclavian artery was tied for a supposed aneurism, which proved to be medullary disease, to which the sound artery adhered. This is not a unique case in which a similar mistake has occurred, leading to a corresponding result. In one case of the three which came under Mr. Stanley's notice, the ilium was the seat of the disease, and the tumour was found to be "soft and spongy, having small cells dispersed through it, filled with blood: bunches of convoluted vessels could be drawn out of this spongy substance, and the whole tumour, when macerated, was reduced to a tissue, closely resembling that of unravelled spleen or placenta." The character of the pulsation is not generally such as to enable the surgeon to distinguish between these tumours and aneurism, and therefore the diagnosis is necessarily obscure; for the history of the case is very likely to correspond in both forms of disease. Indeed, where the erectile tumour exists, it is probable that ligature of the main artery would be followed by relief, if not by permanent cure of the disease. Cases illustrative of such temporary arrest or removal of the disease are referred to and quoted by Mr. Stanley.

The concluding chapter of the second part of the volume before us treats of osseous growths, apparently of a constitutional origin, which spring simultaneously from different parts of the skeleton and of the soft tissues. A remarkable case of this sort is related by Mr. Abernethy, in his Lectures on Surgery, and referred to by our author: bones, tendons, ligaments, alike presented these osseous growths. In this, and in a similar case which occurred in Mr. Earle's practice, there was a deficiency of phosphate of lime in the urine. In a case of a similar nature, under Mr.

Hawkins's care, the constitutional action of mercury and iodide of potassium, and the exhibition of dilute sulphuric acid, were efficacious in controlling the diseased action, and even in removing many of the tumours.

We now enter on the Third part of Mr. Stanley's volume, which comprises "Rickets, mollities ossium, and scrofulous, cancerous, and melanotic affections of bones." Having, however, already somewhat exceeded our intended limits in the foregoing pages, our notice of this and the concluding part of the work must be more cursory, and our analysis more brief.

In the chapter on *rachitis* we do not find that our author has added anything to our previous information on the subject. He has found that, from the eighteenth to the twenty-fourth month is the most common period for the commencement of the disease,—a fact no doubt dependent on this being the epoch when the superincumbent weight begins to tell most on the spine and lower limbs, whilst the predisposing causes may have been excited into activity by the debilitating influence of a difficult dentition. Rachitis has, nevertheless, been met with in the fœtus. The first indication of rickets, says Mr. Stanley, is a diminution of the firmness of a bone, from the separation of its lamellæ and fibres, accompanied by an altered character of its medulla. At a later period, as shown by Dr. Simon, in addition to a decrease in the proportion of the earthy salts, the animal matter is so changed that its extract yields, on boiling, neither chondrin nor gelatine. Mr. Shaw's remarks are quoted on the influence of rickets in arresting the development of the face, by which a disproportion is produced between it and the cranium, the result being that the latter appears to be abnormally enlarged. The changes in the spine are referable to the "yielding of its weakened fibro-cartilages and ligaments;" the consequent curves, and the action of the muscles on the ribs, produce the thoracic distortion; and the growth of the pelvis is interrupted,—a condition which all rickety bones partake of: the necks of the thigh-bones lose their obliquity from the superincumbent pressure, and their shafts, as well as those of the tibia and fibula, become curved from the same cause. We remember to have attended one case in which the ossa femoris were so abruptly bent, that the two extremities of each shaft formed, at their mid-junction, an angle somewhat exceeding a right angle. Occasionally bones are capriciously affected with rickets (if we may adopt such an expression), a single bone being arrested in its growth or curved, without any assignable cause that would not equally apply to other parts of the skeleton.

In the process of reparation, when the distortion is too great, and has been of too long standing to hope for restoration of bones to their original form, a superabundant deposit of earthy matter takes place, by which their hardness is abnormally increased; the concave wall of the curved shaft becomes thickened, &c. We have seen the linea aspera so prominent and thickened in a curved thigh-bone, as to form a complete buttress for support along its concave side. Rickets and tubercle in the lung have been supposed to be frequently associated; but Mr. Stanley's experience does not confirm this presumed alliance.

The treatment of this truly constitutional affection (as regards its origin) is conducted by Mr. Stanley on those enlightened principles which guide surgeons generally (who are not wedded to mechanism) in the present day: pure air, free action of muscles, friction, *et id genus omne*, constituting the hygienic code, are the staple and foundation on which we are to depend; and these should one and all be attended to, even when mechanical interference is desirable. When such assistance is called into requisition, we recommend those who employ it to act on the following principles:

> "The employ of mechanical contrivances is clearly indicated, when the exercise of the part cannot be permitted without increase in the curvatures of the bones, or in the distortion of the joints which have yielded from the weakness of their ligaments. Without such aid, the rickety bone may recover its firmness, but it will retain its deformity; and the ligaments of the distorted joint may recover their tone, but it will be no lessening of the distortion.
>
> "One condition essential to the proper use of all mechanical apparatus, wherever applied, is, that neither by its weight, nor by the mode of its application, should it restrict the free action of the muscles of the part which is the seat of the distortion. In other words, the apparatus must be so constructed and applied, that it can be worn without hinderance to the natural movements of the part. And, besides, it is desirable, for the full effect of mechanical contrivances, that their action should be continuous, not remitting. Directly the restraint they impose is withdrawn, or even lessened, the muscles, aided by the contractility of the other tissues surrounding the distorted bone or joint, will begin to reproduce the distortion. And this evil tendency will continue long after the apparently perfect restoration of the part to its right form and position." (p. 231.)

Our author does not profess to throw any light on the pathology of *mollities* and *fragilitas ossium*, which has rather disappointed us, inasmuch as we know comparatively little of the subject, beyond the simple fact that such conditions are occasionally present, as positive diseases, and not as states of simple atrophy. The walls of a bone become softened and reduced in thickness, and consequently become distorted in various directions, and readily break. A curious and interesting feature which has characterised several recorded cases, which are referred to by Mr. Stanley, is the presence of a large quantity of earthy deposit in the urine, principally, if not exclusively, due to the superabundance of phosphate of lime in this excretion. Usually the whole skeleton is affected in this disease, as occurred in an instance which came under our own observation; but occasionally the affection is limited to the spine or some long bone. Adipose matter is likewise deposited in abundance in the canals and cells of the bone, when the disease is well marked and established; but simple thinning of the walls may occur without such deposit,—a condition more resembling the simple atrophy of age. A curious feature in these cases, where fracture so readily occurs, is, that reunion takes place as quickly as in healthy bone, or even more rapidly. It has occurred to our author to verify this fact, which had also been noticed in cases recorded by the late Mr. Earle and Mr. Tyrrell. Occasionally this brittleness of bones seems to have been associated with a syphilitic taint or a rheumatic diathesis; but whether in the loose relation of *post hoc*, or the stricter alliance of *propter hoc*, it would be difficult to say. Some cases illustrative of fragility and thinning of bones are appended to this chapter; and the author concludes by noticing the coincidence of his opinion with that expressed some time since by Mr. Curling, in a paper published in the 20th volume of the 'Medico-Chirurgical Transactions,' that the process by which the bones are thus changed is one of wasting, sometimes by removal of the earthy, at others of the animal, constituents, whereby a disposition to yielding by fracture or flexion is established. This, however, is not very satisfactory pathology, albeit true as far as it goes.

Bones are not exempt from the universal grasp of *Scrofula*, though our author seems to be of opinion that they are primarily affected in only "a proportion of the scrofulous diseases of joints:" what proportion he does not say. The stages of change observed in bone affected by scrofula are thus laid down by Mr. Stanley. The bone is first found expanded and congested, the medulla in its cells being mixed with blood; secondly, the earthy matter disappears, and this is next replaced by the deposit of tuberculous matter, either diffusedly through its cells, or into a circumscribed excavation, or between the periosteum and bone. In this latter stage, active inflammation, tending to suppuration, is apt to be set up, the disorganization of the original texture being complete. It is in the earlier stage alone, that this disease of bone is curable; for the tubercular deposit excites suppuration almost invariably, the exceptional cases being where it is replaced by chalky matter, which Rokitansky regards (and Mr. Stanley has adopted this view) as a true conversion of tubercular matter into chalk-like substance. As regards the question whether tubercle in bone is usually or frequently found associated with a similar condition of the lungs, Mr. Stanley remarks, that such alliance is certainly not a necessary one, i. e. tubercle in bone does not necessarily imply the coexistence of tubercle in the lungs; but he admits he has not data sufficient to afford the means of drawing a satisfactory conclusion on the subject.

Though reproduction of bone, after destruction by scrofula, does not occur, yet much may be done to mitigate the permanent effects of the disease, even in this stage. But the earlier treatment is, of course, more important. Mr. Stanley has no confidence in local depletion, even at the earliest period; and counter-irritation he regards as equally inert in the more advanced stages. Perfect rest of the diseased joint or bone, combined with free general exercise and exposure to fresh air (especially at the sea-side), are the measures on which we must chiefly rely. The preparations of iodine, alone or in combination with potassium, he regards as inferior in efficacy to those of steel and to cod-liver oil. As regards hospital cases, we do not think much dependence is to be placed on the statistics of medical treatment in such affections as we are now discussing; so much of the benefit frequently ascribed to physic being exclusively due to improved air, diet, and cleanliness.

In the ensuing chapter, on *Hard Carcinoma of bone*, Mr. Stanley remarks, that he has never met with it as a primary affection, but always secondary on disease of the mamma; all the cases which came under his notice, with one only exception, being in the female. The cancellous and medullary tissue is the seat of the deposit; the walls of the bone gradually thin, and then readily break: occasionally carcinomatous deposits are found coincidently in the lungs or other organs. The case illustrative of the foregoing remarks, which our author cites, is the remarkable exceptional one alluded to, in which the disease of the bone was consequent on primary disease of the mammary gland in the *male*.

A somewhat allied disease is *Melanosis*, which also rarely occurs primarily in bone. The cranium, ribs, vertebræ, and sternum are the bones, says our author, in which melanotic matter has been most frequently found deposited; other organs are usually simultaneously affected by the same disease.

The Fourth and last part of Mr. Stanley's work includes—1, "Morbid growths from the jaws;" 2, "Diseases of the bones of the spine;" and 3, "Diseases of periosteum." Under the first of these heads we have epulis and epithelial cancer discussed. The former our author thinks may be converted into the latter by injudicious irritating treatment. The only means of eradicating these diseases is their entire removal, together with the surface of bone to which the morbid growth is attached; and he gives the preference to the knife over caustic. Illustrative cases are given, to which we do not think it necessary to refer.

The lower jaw is subject to a much greater variety of morbid growths than the upper. The following are the forms which have come under our author's notice: 1. A white, compact, opaque substance, through which particles of bone are scattered. 2. A gray, dense, manifestly fibrous tissue. 3 Soft, encephaloid substance. 4. Fatty substance in granules, mixed with cells containing a glairy fluid. 5. A vascular or erectile tissue. 6. Cartilaginous substance, with scattered osseous particles. 7. Membranous cysts, containing a glairy fluid. 8. Osseous growths (exostoses) from the jaw. All of the above, with the exception of the last, originate, for the most part, in the interior of the jaw. We have not space to enter more at large upon this subject, but may notice Mr. Stanley's evidence regarding operations for the removal of tumours from the lower jaw, including a part or whole of this bone,—it is, that they are followed by less constitutional disturbance and risk, than operations of the same magnitude in other situations: the great bulk of these cases recover speedily. Directions are given for the conduct of these operations, and the surgeon is warned to be careful, in liberating the muscles connecting the tongue to the jaw, that its apex is not retracted so as to threaten suffocation. This retraction has occurred in several instances; but the risk may be guarded against by holding the tongue forwards, until the spasmodic action of the muscles retaining their attachment has ceased.

Morbid growths from the upper jaw originate principally within the antrum; they are, says our author, "of a fibrous, cartilaginous, encephaloid, fatty, erectile, or osseous nature." It is, however, difficult, he adds, to distinguish always between expansion of the walls of the antrum from a morbid growth, and that dependent on an accumulation of fluid; and therefore it is a desirable precaution to puncture such a swelling, before attempting the extirpation of what may be judged to be a tumour. Operations of this importance necessarily involve many preliminary considerations prior to their being unbertaken; for the removal of the front wall of the antrum is, in itself, a formidable undertaking; and we would venture to add one to the directions and precautions laid down by our author, viz. that actual cautery should be in readiness to arrest bleeding from vessels, which may supply and enter a morbid growth in such a position as to be out of reach of the ligature. The directions for removal of the upper jaw are clear and judicious, and are exemplified by a case.

Allied in a measure with the preceding diseases, are "membranous cysts, connected with the alveolar processes of the upper jaw:" these, Mr. Stanley remarks, may assume a character resembling enlargement of the antrum. He thinks it probable that these cysts commence close to, or even within, the socket of a tooth. Their treatment should be free incision, and injection of a stimulant fluid into the cyst. The treatment of accumulations of fluid within the antrum closes this chapter.

The ensuing chapter is a comprehensive one, including all the diseases of the *Vertebral Column,—inflammatory, scrofulous, and malignant.* We shall briefly glance at these. The changes resulting from inflammation are such as are common to all bones, together with thickening of the ligaments, and softening and ulceration of the fibro-cartilages. A remark, selected here and there, will serve to illustrate our author's mode of treating this part of his subject. He has often found purulent fluid diffused through the cancellous texture of the vertebræ, but has never met with a circumscribed abscess in that situation. Ulceration of the vertebræ is the most frequent of their structural changes, and mechanical injury the most rife cause of this change. The diseased action in question usually commences in the front of a vertebra, and paralysis is consequent on the posterior part of the diseased bone being forced back on the cord by the approximation of the neighbouring healthy bones. These ulcerated hollows become filled with fibro-cellular tissues, if time and circumstances admit of such reparation ; but the lost bone is never reproduced. He believes that ulceration does sometimes *commence* in the intervertebral fibro-cartilages. As regards scrofulous disease of the spine, it presents the same characters as in other bones. The treatment of these diseases must of course be varied according to circumstances, but rest, and relief from the superincumbent weight, are essential in all. Local depletion Mr. Stanley regards as available only in a limited number of cases, and extreme caution is required in its use ; but of mercury, as a remedy in acute inflammatory affections of both the spine and spinal cord, he has a high opinion : examples of its efficacy are given.

Where the inflammation is chronic, and characterised by a rheumatic diathesis, he considers iodide of potassium a valuable medicine. In certain paraplegic affections, due to inflammation resulting from cold, he advocates the use of small doses of the bichloride of mercury with bark. In a case thus treated, the patient, who had been paraplegic for nearly ten months, and subjected to various forms of treatment, was enabled " in six weeks to walk about the ward with ease and firmness." With respect to the mooted question of the value of counter-irritation in scrofulous affections of the spine, our author has no doubt of its efficacy in withdrawing the irritation to which such disease has given rise, but questions whether it ever arrests the progress of the disease itself. Such are some of the leading points included in this chapter. A section on psoas abscess follows ; but in it we do not remark anything particularly worthy of notice. Diseases affecting the first and second vertebræ are specially adverted to, on account of their frequent and sudden fatality : instances illustrative of these affections are cited ; and we refer our readers likewise to cases published in the last two volumes of the 'Medico-Chirurgical Transactions.'

Lastly, malignant diseases are noticed in this chapter. The vertebræ, (says Mr. Stanley,) become softened and extremely vascular, and their cells are filled by carcinomatous, encephaloid, or melanotic deposit. The constant and agonising pain accompanying these affections is mentioned as almost invariably characteristic of them ; but, he adds, " unfortunately (for the diagnosis we presume), in some few cases it has been decidedly otherwise." These affections are usually rapid in their progress, and of course, fatal in their termination.

The closing chapter is on diseases of the *Periosteum.* Inflammation of this membrane is very often caused or modified by syphilis, rheumatism, and scrofula; and the effects are thickening and induration. The progress of this change is thus traced by Mr. Stanley. "First, its texture (that of the periosteum) softens, and is seemingly unravelled; then, gelatinous substance is deposited into the meshes of the softened tissue, and hardening gives it the density of fibro-cartilage." (p. 345). Diffuse inflammation is the more common result of rheumatism; whilst syphilis attacks distinct portions of periosteum, followed by effusion beneath it. These venereal affections may, as our author remarks, be followed by ossification, in most bones; but this is never the case in the corresponding circumscribed swellings consequent on inflammation of the pericranium. Cases are cited, illustrating periostitis upon the pelvis, and the extension of inflammation from the periosteum near a joint to the joint itself: both serious affections. The treatment of periostitis generally, by local depletion, soothing applications, and the constitutional action of mercury, is also exemplified by instances in point. In the less acute forms of the disease, Mr. Stanley seems to place the same confidence in iodide of potassium, as influences, we believe, the practice of most scientific surgeons in the present day. Cod-liver oil is extolled in the scrofulous form of the disease. Lastly, fungous excrescence, resulting from repeated attacks of inflammation, and constituting a malignant form of disease, is noticed and illustrated by cases. The only treatment to be trusted to in this affection is, in Mr. Stanley's opinion, removal of the limb; excision of the morbid growth he has found no security against the recurrence of the disease.

Our task is now well-nigh completed: we said, at the outset of the present review of his work, that Mr. Stanley had fairly realized what the profession expected of him. If we have felt, in our critical perusal of the volume, what we think our full analysis of its contents has proved, that there is less of originality in facts and reasoning than we had expected to find, we must ascribe it to the continual progress of science and advancement of discovery, which necessarily leads many labourers to turn up treasures simultaneously in the same field: and if we have thought that the most efficient instrument of the present day for such researches has been too little used, we must again remember that it is difficult for those who have been inured to other and more practical modes of investigation, to accommodate themselves to habits of examination which require such a regular education as the microscope. We do not mean that this instrument has been neglected; but we think it might have been more frequently called into requisition with advantage.

We have not hesitated to present our readers with a fuller and more extended analysis of this volume, than is our custom. The interest of the subject, and the novelty of the work, as a systematic treatise on diseases of bones, seemed to call for such notice: and we do not hesitate to say, that Mr. Stanley has done an essential service to the Profession, in placing all the available information at his command, together with the results of his own experience, thus conveniently within the reach of his brethren: we feel assured that every practitioner will be well repaid by a careful study of the volume before us. The style in which it is written is terse, clear, and correct, without redundancy; at the same time the author has a cautious mode of expressing himself, where an opinion has to be given or an inference drawn, which seems almost to bespeak a want of that self-confidence which a surgeon of Mr. Stanley's eminence and experience might well assume, without a risk of being charged with arrogance: this, however, is a venial fault, and one we must not quarrel with in an author. If it be objected that the work we have been reviewing might have been more complete, it is but justice to state that its author admits the existence of such imperfections; having left, as he tells us in his Preface, "some of the morbid phenomena of bone uninterpreted, even unnoticed, for the reason that they were unintelligible" to him.

Although we propose in a future number to devote a separate notice to the Plates, which in their publication accompanied the present volume though they do not constitute an essential and integral part of it, yet we cannot close this review without remarking on their faithfulness to nature and their singular beauty.

ART. XI.

1. *History of the Cholera in Exeter in* 1832. Br THOMAS SHAPTER, M. D., Physician to the Devon and Exeter Hospital.—*London*, 1849. 8vo, pp. 292.
2. *Ueber die Heilung der jetzt-epidemisch Cholera.* Von Dr. L. GRÜNBERG, Militärarzte.—*Warschau*, 1848. 8vo, pp. 36.
3. *Mémoire sur le Développement, les Causes, et le Traitement du Choléra.* Par CH. DOORJAK, Médecin de la Cour Impériale.—*St. Pétersbourg*, 1848. 8vo, pp. 32.
4. *Treatment of Cholera in the Royal Hospital, Haslar.* By JOHN WILSON, M. D., F. R. S., Inspector of Naval Hospitals and Fleets.—*London*, 1849. 8vo, pp. 36.
5. *The Leading Phenomena of Epidemic Cholera.* By AMBROSE BLACKLOCK, Assistant-Surgeon, Madras Med. Est.—*Madras*, 1848. 8vo, pp. 68.
6. *Contributions to the Pathology of Cholera.* By JAMES BIRD, A. M., M. D., late Physician-General, Bombay Army.—*London*, 1849. 8vo, pp. 48.
7. *Treatise on Cholera.* By N. ALCOCK, A. B., M. D.—*London*, 1849. 8vo, pp. 190.
8. *Inquiry into the Actual State of our Knowledge of Cholera.* By ALEX. KNOX.—*Dublin*, 1849. Fcap. 8vo, pp. 266.
9. *Cholera, an Analysis of, &c.* By H. STEPHENS, Esq.—*London*, 1849. 8vo, pp. 48.
10. *Mode of Communication of Cholera.* By JOHN SNOW, M. D.,—*London*, 1849. 8vo, pp. 32.
11. *The Cholera at Malta in* 1837. From the Italian of GUISEPPE STILON, M. D. By SETH B. WATSON, M. D.—*London*, 1848. 8vo, pp. 178.
12. *The Cholera considered Psychologically.* By FORBES WINSLOW, M. D. —*London*, 1849, 8vo, pp. 16.

13. *Malignant Cholera; its Mode of Propagation and its Prevention.* By WILLIAM BUDD, M. D., Physician to the Bristol Infirmary.—*London*, 1849. pp. 28.
14. *Report of a Series of Microscopical Investigations of the Pathology of Cholera.* By F. BRITTAN, M. D. (From the London Medical Gazette)—*London*, 1849. pp. 16.
15. *Quarterly Returns of the Marriages, Births, and Deaths registered in England.* Published by authority of the Registrar-General. (Nos. 1, 2, and 3, for the Quarters ending March, July, and September, 1849.)

THAT an ample harvest of literature has followed the epidemic of cholera, the list at the commencement of our article bears good evidence. But this is not all which has yet to be gathered in. Materials, probably still more important, those collected with the greatest care, and arranged with the most attention, have yet to be published. These heavier publications do not appear with the rapidity of their more ephemeral predecessors. Reports are now understood to be in preparation by various official bodies; and we have therefore deemed it advisable to delay all discussion and analysis even of the works we now possess, until we shall be able to make use of all the new matter we are likely to have. The question of the mode of propagation and communication of cholera, of the nature of the so-called "cholera fungi," of the pathology and treatment of the disease, can hardly be considered at present, without encountering the risk of having to pass again over the same ground within a brief space. We have therefore preferred to employ the space at present at our disposal, in calling the attention of our readers to one point alone, on which we seem already to have arrived at satisfactory conclusions, and of which the importance cannot be over-estimated; and have endeavoured to put the question of sanitary reform, as far as cholera is concerned, on what we conceive its proper ground,—taking as our text the following brief extract:

> "The population of England has suffered, died, and decreased during the quarter to a degree of which there is no example in the present century . . . . . The annual mortality of the summer quarter of 1849, exceeded the quarterly average by 53 per cent. The excess has been caused almost entirely by the cholera . . . . In some districts the people have died by hundreds, or by thousands; in others not far distant, few have died, the inhabitants have been unusually healthy." (Registrar-General's Quarterly Report, No. iii, pp. 2, 3.)

The Quarterly Reports of the Registrar-General are among the most interesting and instructive documents of the day, They are to us what, in an inferior degree, the Saxon Chronicles were to the 11th and 12th centuries. They engrave in brief but expressive phrases, the national vicissitudes, prosperities, trials, and calamities. With those faithful and unerring indices, marriages and deaths, the Registrar-General measures the robustness of national vigour, or probes the depth of national suffering. Backed by those ranks of expressive figures, which permit no exaggeration, and are susceptible of no fallacy, he presents to us a true picture of the present condition of our country and nation. No false rhetoric or untrue colouring is suffered to mar the truth of the hard and simple outlines. No political creed conceals the facts or perverts their meaning. No unjust law orders the distortion of half the truth by the concealment of the other half. These Reports are indeed something more than current history; they are the judgments of the time upon itself; and untinctured as they are by party spirit, and unswayed by personal considerations, those judgments are as true and faithful as those of future times can be. It is no objection to the value of these records, to say that they chronicle with greater minuteness and accuracy the national ills and chastisements, than the national happiness and success. The most dreary and painful side of human existence is certainly most largely presented to us. The shadow of imperfection and decay tinges all things with its melancholy hues. Our path is rather through the gloomy valley, and under the shade of cypresses, than on the invigorating mountain side, resplendent with the light of heaven. But this seems to be the necessary result of all true histories of the social condition of a people. That which is strongest and most permanent presses aside that which is less vigorous and enduring. Happiness and comfort escape the chronicler; the gaunt features of misery and distress are ever before him. The happy hours of a nation's, as of an individual's life, are as the sandy ripples which the advancing tide washes into smoothness; the hours of sorrow and of trouble are like those ripples fossilized into stone.

In all this there may be a deeper meaning than at first appears. Beneath this fact, that we are permitted so easily to apprehend and chronicle that which is painful, and find it so difficult to record that which is otherwise, may be couched a profound lesson. Adversity, both for the unit and the multiple, the individual and the nation, is the truest teacher. To bring out the strength of humanity, it is necessary that its weakness should be disclosed. For then the mind, urged on by its innate principles of justice and of honour, strives to reform that which is wrong, and to rectify that which has gone astray. When the Registrar-General records the revival of trade in Birmingham or in Sheffield, or the evidences of prosperity in Wolverhampton or Manchester, we are no more interested, than because our self-love or our national pride may be gratified, or the generous instincts of our nature pleased. But when we read that the mortality of a district has been increased in three months by 53 per cent., and that the deaths in all England have occurred in greater numbers than have ever before been recorded, the attention of every man is at once painfully and sternly arrested. Every man instinctively pictures to himself how much misery and lasting grief and sorrow this great mortality symbolizes. It requires no stretch of imagination to realize a great national calamity, of which the actual deaths are but the smaller items. Behind each death we can trace easily the anguish of the living; the distress of those left fatherless, husbandless, childless; the hopes blighted; the ties broken; the companionship and sympathy for ever destroyed. A thousand mental pangs, and among the poor, a thousand bodily hardships, are the legacies and sad memorials of every death. Callous and cold-hearted indeed must he be, who can turn aside from such a record, without seeking to probe this national wound, and to demand whether there is no healing force whereby its bleeding surface may be staunched.

To the student of Nature there is at first something in the highest degree dispiriting, in the strange contrast between the physical sufferings of a great portion of mankind, and the extreme beauty and order which he has been taught to trace in the material arrangements of the universe at large. In whichever direction we gaze on the forces and changes of matter, organized or inorganic, our glance, though limited, recognises perfection and all-wise design. The mind of the astronomer, subdued and overpowered by the majesty of his illimitable study, is yet ennobled by the predictive power to which his limited faculties are enabled to attain. The physiologist, beholding the action of a force in the life of the minutest cell, higher than that which governs the movements of innumerable worlds, is not less impressed with wonder. The stamp of Omnipotence is upon all things,—through all we rise to the present Deity. In the contemplation of these sublime phenomena, we seem for a moment to forget our own imperfections, and to partake of the Divinity which we recognise. The feeling most prominent after the mental emotions of awe and wonder, is perhaps a moral one. We are hardly less impressed with the power, than with the evident benevolence with which it is wielded. There is something inexpressibly tranquillising and soothing to us, when we have realized, as far as may be, the overwhelming might of the material and vital forces, to find that we have irresistibly realized, at the same time, an absolute conviction that these mighty forces are wielded only for good. In the presence of so high a philosophy, the doctrines of Zoroaster and his followers appear like the ravings of idiots. The existence of evil is as a thing impossible; we echo the divine judgment which stamped the completion of the infant world; and now, as then, all things are seen to be "very good." Nor is this faith shaken by the occasional interruptions of the general order, or by the apparent exceptions to the universal benevolence. We know that the hurricane and the lightning have their appointed task; the volcano and the earthquake their destined missions. And when we have recognised that the very condition of the continued life of the race is the death and destruction of individuals, the instances of apparent cruelty among the lower animals present to us no difficulty. Nor, indeed, are these examples of cruelty so great as we at first imagine. For the most part, the deaths of the lower animals are as painless as possible. The deadly poison of the snake kills at once without anguish; the deer whose scent is failing, whose swiftness is impaired by age, and whose life would otherwise terminate by famine, is struck from behind by the skulking tiger, which could never approach it during the period of perfection of its faculties and strength; and even the tremendous instruments of death with which some animals are provided, appear intended only to make the destruction of their prey more speedy and more certain. Such considerations as these, taken in connexion with the mental constitution of the lower animals, their want of retention of impressions however vivid, the impossibility, for the most part, of painful occurrences being recalled to them, &c., speedily lessen the impression which might at first be made upon the mind, by the spectacle of their continual death and destruction.

But if it were possible that a man should be nurtured in this creed, and should know nothing of the condition of his fellow-man upon the earth; if a Humboldt, pursuing his sublime study on the desert plains of Peru, amidst the vine-clad slopes of Oratava, or under the high tops of Himalayan palms, could trace out the divine harmony of the Kosmos, without regarding the conditions of one of those races for whom that perfect order was called forth: would it not appear to him like the work of a demon if, suddenly from his "misty mountain top," he were placed in the centre of cholera-smitten London or Paris, and could have, unfolded before him, the sight which the Archangel showed to Adam, and which from age to age might have been redrawn in changing but never-dying colours:

"Numbers of all diseased; all maladies
Of ghastly spasm, or racking torture, qualms
Of heartsick agony, all feverous kinds,
Convulsions, epilepsies, fierce catarrhs,
Intestine stone and ulcer, colic-pangs,
Demoniac phrensy, moping melancholy,
And moon-struck madness, pining atrophy,
Marasmus and wide-wasting pestilence.
* * * * * Despair
Tended the sick, busiest from couch to couch,
And over them triumphant, Death his dart
Shook."

Would not the pain and long-drawn suffering of his kind appear to such an one something inconsistent and misplaced, in the centre of that grand universe in which he had before heard only accents of joy and thanksgiving? Would not the passage of a mortal disease like Cholera over the face of the earth, creeping on from country to country, from house to house, and involving in one common grief men of all nations and of all conditions, appear to him as something altogether monstrous, and foreign to the conception he had formed of universal happiness and love? When he became familiarised to the scene, measured the extent of the suffering, observed the manifold evils of which it is the indication, noted not only the physical ills, but the sad aberrations and dimmed lustre of that divine particle within us, that true "breath of life" which was breathed into our nostrils, would not indeed "compassion quell his best of man?" Looking around at this scene, and searching into its cause, might he not deem he had found the true solution of the mystery, when he imagined that, for the sins of its inhabitants, the benevolent but just Creator had "smitten the earth with a curse?"

Feelings akin to these, though deadened by custom, and blunted by continual repetition, are familiar to all of us. Few of us, who have been brought into contact with the profligacy, guilt, disease, and misery of our large towns, but have felt our admiration at that frame of man which is so "wonderfully made," strangely mixed with horror at the uses to which it is put, at the sufferings to which it is liable, and at the kind of death to which it is doomed. We perceive a startling discrepancy between the majesty of the thoughts to which the study of our profession has led us, and the baseness of the existence which the practice of that profession teaches us to know.

A deeper study and consideration, however, of this apparent discrepancy, enables us to penetrate, at any rate to a certain extent, into its significance and source, and to see that it has no real existence. We are not long in discovering that many of the physical ills of which we are the witnesses, have no necessary participation in the scheme of Nature; that they are, in fact, the results of direct opposition to her laws, and exist only as exceptions to the orderly arrangement of events. We perceive that, in the vast majority of instances, the removal of the sources of these evils is within the power of those who suffer from them; and it is not difficult to understand that the existence of such evils has been permitted, for the very purpose of exciting into activity the power and mental force, which, without such stimulus, would have been but half unfolded. Without attempting to penetrate into mysteries which do not concern our immediate avocations, we yet are irresistibly led to the conviction that the groundwork of many of those evils to which flesh is heir, lies not so deep, but that human agency can root it out and banish it from the world. When this conviction is reached, physical evils lose much of their sombre colouring; we come to regard them as temporary, as dependent on ourselves; as arising necessarily from the Divine scheme of which we dimly trace the outlines; inasmuch as the very existence of will, and of the unbiassed action of imperfect beings, who are to be perfected by exertion, necessarily implies deviations and failures, and the suffering which must inevitably follow.

If, leaving these general propositions so briefly and imperfectly stated, we follow up a single case among the multitude which might be proposed, our argument and meaning will receive a fuller illustration. Without doubt, the late fearful epidemic of Cholera, which has devastated Europe and America, and is now about to spend its force on the western seaboard of Africa, is well calculated to excite the deepest interest, and to stimulate the most energetic investigations. Can anything at first be conceived more horrible to the imaginations of men, than the existence of a subtle disease, arising no one can tell how, propagated no one can tell in what manner, laying its icy finger, which is almost as fatal as the dart of Azraël himself, on men of all countries and conditions; passing like a gloomy cloud over nearly the whole earth, and from the earth ever regaining the darts with which it pierces its successive victims? Well may men at first believe,—when they perceive the gradual advance of this deadly enemy, unarrested by human efforts, and disregarding the feeble barriers which are raised against it,—when they note the rapid and ghastly symptoms which mark its deadly blows, and the comparative inefficacy of scientific aid,—that either some new spirit of evil has been permitted to derange again, as Lucifer of old, the primal harmony, or that the messenger of an offended God has poured into the air the vial of wrath and chastisement for human error.

We can imagine the surprise with which the holder of so melancholy a creed would meet, in an official report by the Registrar-General, with the following sentence: "*In some districts the people have died by thousands; in others not far distant, the inhabitants have been unusually healthy.*" The singular antithesis would at once arrest his attention. "What," he would say, "is there capriciousness even in the action of that power which is supposed to know no shadow of turning? Will this agent of destruction here smite, and here forbear? Or are these suffering districts the guilty ones, and the sufferers those on whom the wrath of heaven alone should justly fall?" But speedily he would find this explanation fail him. Glancing over the catalogue of the victims and of the spared, he would soon convince himself that the guilty dwelt not exclusively in the pestilential quarters, that the innocent had not been protected everywhere from the scourge. Not sinners above all sinners were those Galileans whose blood Pilate mingled with their sacrifices, or those eighteen on whom the tower in Siloam fell.

Baffled in this explanation, he would begin to scrutinize more closely the recorded histories of Cholera. It would not be long before he would find that the apparent anomaly which had excited his attention, had not passed unnoticed by the recorders of the disease. He would learn that this apparent capriciousness of attack, this immunity of one, these dreadful sufferings of the adjoining district, was common to the outbreaks of the disease in all quarters of the globe. Everywhere he would hear it repeated by the observant members of our benevolent profession, that Providence had not let loose this "wide-wasting pestilence" on the world, without providing that it should find its strength and vigour only in deviations and departures from the eternal laws of health, which deviations are permitted to men as being able to err, but are not necessary to them, as if they were unable to perceive their error. Everywhere he would hear it asserted that cholera might, by human precautions, be shorn of its fatal strength; and that there is even good reason to think, from the evident relation which its power and activity bear to certain conditions in which men are placed, that its very existence and source may hereafter be traced to some analogous conditions in those distant countries in which it appears to have its rise, and being thus traced, may be at once destroyed.

We cannot but conceive, that, when this opinion had been fully presented to the mind, and the abundant evidence on which it is founded carefully weighed and found sufficient, not only might the order and harmony of the natural laws seem to be at once restored, but fresh indications of benevolence might be traced in the plan, which thus, by means of suffering, at once indicates error, and excites the determination to remove it. We can indeed go farther than this, and venture to believe, without the charge of attempting to penetrate into that which is forbidden to us, that in this and in similar ways Providence calls the attention of nations to those evils, which, from their kind, or from the class of persons whom they affect, are little likely to attract the attention of the great and powerful, who can alone remedy them.

We have stated above, or at least have left it to be inferred, that there is abundant evidence to prove the dependence, or at least the partial dependence, of cholera on certain conditions which are unfavorable to health, and which are readily removeable. This opinion, deduced from the labours of our professional brethren. and repeatedly declared by ourselves and others before the late epidemic, is supported by all the facts we have been able to collect concerning the disease as it has lately been witnessed. In July, 1848, we wrote—"The poison of cholera derives its terrible power chiefly or entirely from the accessory circumstances which attend its attacks." At that time cholera had not appeared in England; it has now passed over us, and we are more than ever convinced of the truth of this opinion. Did we think it necessary, we might refer to confirmatory facts derived from Germany, France, and our own country. But these facts are so well known, that it would be needless to re-prove again a proved position, although we might detail the instances of Nottingham or of Exeter excluding cholera by sanitary improvement; of Bethlem Hospital, standing in the midst of, and holding constant communication with, an infected metropolis, and yet preserving its numerous inmates (of that class also which have been supposed, though probably erroneously so, to be especially predisposed to cholera) altogether free from the least taint of the disease, by its perfect arrangements of sewerage and water supply; or, on the contrary, we might cite the opposite illustrations of Merthyr Tydfyl, situate in what was originally a most healthy spot, yet where men wallow in filth, leading the lives and dying the deaths of unclean brutes; or of Newcastle-under-Lyme, situated on some of the highest ground in the interior of England,* yet with a dirty river for an open sewer, poisoning the air with its pestilential effluvia. But we reserve all such considerations until a future occasion; when, the important documents which are in preparation by official parties having been made known, we shall be better prepared to consider this whole subject minutely, and to determine what are the relative influences of each of those several conditions, which are usually classed together under the term of the "sanitary features" of a place.†

We shall merely here quote the opinions on this subject of the man who is perhaps most able to judge, inasmuch as before him by far the most accurate and trustworthy reports from all parts of England have necessarily been laid. If there is any one whose information may be supposed to be accurate, whose impartiality may be relied on, and whose judgment may be trusted, it is the Registrar-General. From every place in England where a single case of Cholera has occurred, he has of course had his special report. He is biassed by no theories, and is above the reach of all suspicious leaning. What, then, does this man say, after having in the fulfilment of his official duties, recorded daily the progress of this devastating malady? Does he regard the cholera as a disease altogether beyond our reach and means of mitigation? Does he write down his long rows of fatal figures, and draw from them only this lesson,—that man must suffer and must endure, even to the end? By no means. The very man who has most cause to know the power of this pestilence, is he who most loudly proclaims how its career is to be stopped. In the quarterly return ending June we find the following passage:

> "Cholera is a health inspector that speaks in language which nobody can misunderstand; it visits the prisoner in the hulks on the polluted river; the neglected lunatic in his cell; the crowded workhouse; the establishments for pauper children; the sides of stagnant sewers; the undrained city; the uncleansed street; the cellar and the attic, as well as the fair open quarters which strangers frequent and admire. *The oversights, the errors, the crimes of persons who, in responsible offices, have charge of the health and life of men, are proclaimed aloud by this inexorable voice.*

And in reference to the possibility of diminishing the fatality of Cholera by removing its accessory causes, we find, in the succeeding Report, the Registrar-General comparing cholera and hydrophobia in the following terms:

> "A disease in which the patient is restless, anxious, convulsed, and death-stricken,

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* In an excellent paper by Mr. Smith, published in the 'Medical Times' of Nov. 3d, perhaps too much influence is attached to mere elevation. Level has certainly its effect, but is subordinate to other conditions. As the Registrar-General remarks, there are "instances which enable us to understand how cholera can be made fatal on open fields, hill sides, and high lands in the interior of the country."

† These are, chiefly, the elevation of a place above the sea, its aspect, its proximity to water; the arrangement and number of its houses; the number of its inhabitants in a given space; their trades and modes of life; the kind and amount of their water- and air-supply; the condition of their houses as to general cleanliness; the condition of their privies, cess-pools, and sewers. Afterwards, the conditions proper to the individuals attacked have to be determined.

> the moment he shrinks from the sight of water. was formerly of common occurrence in London. No death from that cause has been recorded in the last five summers. Yet hydrophobia is inevitably fatal, and medicine is of no more avail when its symptoms are revealed, than it is in cholera; but the wise course of removing its causes has been tried, and bids fair to create a permanent blank in the London nosology. The causes of typhus, of influenza, of cholera, and of the like diseases, will not long, we may hope, remain in undisturbed possession of the earth and air of this city. Hydrophobia disappears, when the dogs which are liable to become mad or to be bitten, every summer are removed by police regulations; so will the other zymotic diseases give way, when that putrid, decaying, noisome atmosphere exhaled by churchyards, slaughter houses, the tanks of dirty-water companies, cesspools, sewers; crowded dwellings, is purified and dissipated. The sewers and cesspools now under our houses will inflict more pains and destroy more living than ten thousand mad dogs let loose in the streets, and may as certainly be removed."

If these statements be true, and that they are true we think the whole profession will bear witness; if the fact that Cholera in one district slays its thousands or its ten thousands, and yet in another cannot find a single victim, is attributable to certain unhealthy conditions, present in one case, absent in the other; a fearful responsibility does indeed rest upon us all, if we make not this fact known, and, having made it known, do not see that it is acted upon by those whose duty it is to take charge of the health of the people.

Let us consider for a moment what is our actual responsibility, when we have admitted, as admit we must, that the *causes* of Cholera are removable, at any rate, to such an extent, that the disease would be able to find only solitary, where now it finds numerous victims.

In the first place, if the views we have rather intimated than discussed be correct; if Cholera and similar diseases, which mark so serious a departure from that order and divine harmony which we have learnt to regard as normal, are really and truly punishments for our sins; if it be then asserted that the diseases are removable, this can necessarily only be, because the special sins have not merely been discovered but also removed. For, if the diseases can be eradicated, and yet the sins remain, shall we continue to hold to our faith, that the diseases are punishments at all? No, if cholera is a chastisement for sin, and yet can be eradicated, it must be because we have discovered and have repented of those sins which it was sent to punish. To refuse to eradicate cholera would, therefore, according to the strictest laws of logic,—according to the rules of all reasoning, be our own condemnation. Like Pharaoh, we should have been smitten with a plague, and have then hardened our hearts. The refusal would be a signal of non-repentance, if, knowing that the curse *could* be removed from us, we did not strive to remove it. Now, for our own parts, we have no hesitation in the belief that the visitation of Cholera *is* permitted by the Almighty as a punishment for a national sin; that sin being, in our apprehension, the apathy of the nation to the state of the labouring poor, and its neglect of the conditions which an All-wise Creator has laid down as essential to human health and welfare. The earnest, well-directed, and self-sacrificing attempt to remove the dreadful evils whose existence has of late so strongly forced itself on our cognisance, will be the only real proof of our sincere repentance of that sin, and will be followed, we feel assured, by the Divine mercy and forgiveness.—But if any one should remain firmly wedded to the conviction, that Cholera is sent from heaven as a punishment for the omission of *Dei gratiâ* from the new florin, or for Sunday labour in the Post-office, or for sending Jews and Dissenters to Parliament, or for any other of the national sins which have been recently asserted to be those most deserving the Divine vengeance, the only possible way in which he can escape from his responsibility in this matter, is by denying the second premise of our argument, viz. that cholera *is* influenced by these sanitary conditions, and can be thus removed. If such a plea is brought forward, we implore the doubter to look carefully over the evidence which the labours of the medical profession have accumulated on this matter. He is bound to put these facts before his reason calmly and without prejudice. If he still doubts the influence of sanitary conditions, we have no more to say to him—he has a right to his opinion; we to ours. But if he is convinced, we then are empowered by the facts to urge upon him this undoubted truth, that, if he assists not in the removal of the evil he has recognised, he is more guilty than are even those who, being blind, will not seek to see, or, being deaf, will not strive to hear; for he, having known what work he had to do, did it not.

But secondly, apart from this sense of duty, than which there is none higher, and which every Christian to whom the facts are known must have, we may claim public attention to this matter on grounds, lower it may be, but still of infinite weight and power. Let us endeavour to realize this astonishing fact. A disease has lately crossed over these countries, which, in our metropolis alone, has swept away 15,000 souls. We have lost in all Britain more lives than we have lost in battle since the days of Marlborough. And, looking at the matter in a mere worldly sense, who can know the incalculable value of many of these lives? In the midst of the general distress, a set of men come forward to say, that they have found a plan for preventing the recurrence of this frightful slaughter. These men are no enthusiasts, but are the persons who, of all others, by education and experience are best able to know the truth of their assertions. The whole medical profession announce, that they can prevent, if means are given them, the recurrence of this mortality and suffering. Are these men worthy of credit, or are they not? If they are, then where is the government, where is the nation, that can disregard this assertion,—that can blindly shut its ears to those groans of anguish, the echo of which has not yet died from our affrighted air,—and, careless of the future, can see with indifference the inevitable recurrence of that fearful drama which, in a few short years, must be again repeated? But we must go farther than this: we must ask, whether there is any nation, in Europe at any rate, which can be so selfish, so engrossed with the love of mammon, that it cannot make some sacrifice to effect so great a good? Is it possible that the expression quoted by the Registrar-General, in reference to Salisbury (which has been lately so severely attacked by cholera) can find any echo?—"Any attempt to improve the general drainage of Salisbury," we are told, "would be impracticable; *it would interfere with too many interests.*" Will the nation which can overbear all interests and opposition, when a railroad is to be made or a dock formed, suffer interests no greater than are unhesitatingly set aside in such cases to decree the deaths of another 50,000 persons in the next epidemic of cholera? We have a firm hope and firm belief, that these questions can be answered only in one way. The nation is now fully awakened to the condition of its poor, and to the necessity for sanitary reform. This great work, which was commenced two sessions ago, has been impeded and arrested by interested and ignorant opposition of all kinds. It must now be again advanced and a comprehensive measure of sanitary legislation undertaken by the government and worked out by the medical profession. Then, when, this has been accomplished, we shall possibly have removed from among us that plague-spot and sin, of which the cholera was the heaven-sent avenger. We shall have recognised and remedied the social ills of which it was the touchstone; and the social sufferings to which it gave voice and utterance.

Thirdly, we may regard this question from a point of view more purely professional; and may adduce the acknowledged inadequacy of medical treatment in the majority of cases of developed Cholera, as an additional reason why measures of prevention should be more strenuously urged and more unflinchingly carried out. It is, perhaps, fortunate for Sanitary Reform, that Cholera has proved so stubborn to the ordinary curative methods. Had it been otherwise, our inert rulers might have permitted, for long series of years, the existence of those imperfections in our social condition, which the epidemic of Cholera has so clearly indicated, and for the removal of which, so far as can be accomplished by legislative enactments or by individual energy, the public voice should be now unceasingly lifted up.

In regarding in this light Cholera and Sanitary Reform, we have necessarily touched with feeble and incompetent pen on the outskirts of some of those great questions, which in all ages have most deeply moved the minds of men. But we have not proposed to ourselves to pass deeper into these problems, than we felt we might safely do by a path we have ourselves explored, and on ground of whose stability we are personally assured. What may be the decrees of that inscrutable Power, beneath the shadow of whose wings we dwell; how far they are consonant with our reason, or can be penetrated by our inquiries; are problems we need not necessarily attempt to solve. We have had no desire to do more than glance, for our own purposes, at that "tremendous enigma," the origin of evil. But this we have asserted and are prepared to prove, that in so far as one great physical evil is concerned, if men suffer from it, it is not that they are inevitably condemned to do so, but because they will not themselves loose the shackles which bind them.

It would not be difficult for us to proceed much farther than this, and to bring forward undoubted facts to prove the power which Man himself could wield, not only over Cholera, but over the greater part, if not the whole, of those ills which our profession is constituted to repel. Every medical practitioner could say, how the greater number of the maladies he is called upon to cure, might have been prevented. Some diseases may yet lie beyond him, but even these he may from analogy regard (and probably with justice) as also preventible evils. The opinion is not an extravagant one, which asserts that thus it would be possible to banish nearly all disease from the earth, and to restore to man his pristine vigour. If such a belief be true, that afflicting contrast between the sufferings of mankind, and the beauty and beneficent ordering of the universe, disappears for ever. The source of the contrast is found to be within us,—the fountain of the evil is in ourselves. We are our own tormentors, and are not merely the prey and unresisting victims of powers higher than ourselves.

But, it may be said,—these evils, remediable in themselves, may yet be irremediable by reason of our weakness. Recognising right, we may yet be unable to forbear from wrong. An inherent imperfection may stand between us and our freedom alike from physical sufferings and moral perversions. Into such a question as this, we shall not attempt to enter. It has perplexed philosophers of all ages, and will probably continue to perplex them to the end of time. For our parts, we prefer to rest in the pithy apophthegm of Dr. Chalmers, that the welfare of humanity has always been most promoted by those, "who trusted in God as if God did all, and laboured themselves as if Man did all." And, as another great thinker of the day has said,—"Let every man *find* his work, and *do* it." *Our* work, as a Profession, is in every way to endeavour to diminish physical suffering, according to the knowledge which has been given to us. That the imperfections and delinquencies of men will impede Sanitary Reform is no reason why we, whose bounden duty it is to preach sanitary reform, should be silent. We are to do what our science bids us, and to trust the result to the care of that Providence, who, we are told, accounts of value even the life of a sparrow; and we have faith and hope in this result being what our researches have led us to anticipate.

The Medical profession, in urging on and in administering Sanitary Reform, for no other body of men can do it, will be fulfilling the most important duties which any class of men have ever rendered to a state in the history of the world. They will be indeed realizing the prediction of Descartes, who saw, in the unfolding of medical science, the amelioration of mankind. They will convince even those miserable sceptics, who dare to sneer at medical science, because it cannot cure, like a God, those diseases which the self-indulgence, the sensuality, and the brutality of years have induced, or to remedy, as by a miracle, those ills which the neglect and cruelty of men have inflicted on their fellow-men; they will convince even these detractors of a noble calling, that medical science, which had its birth in the weaknesses and necessities of the human race, is as the light arising out of darkness, which itself destroyed that from which it sprang.

Art. XII.

The Physiology of Digestion considered with Relation to the Principles of Dietetics. By Andrew Combe, m. d. Ninth Edition, edited and adapted to the present state of Physiological and Chemical Science, by James Coxe, m.d., f.r.c.s.e.—*Edinburgh,* 1849. 12mo, pp. 192.

To none of our readers, we trust, can it be necessary to say a word in recommendation of this excellent treatise; since we hope that every one of them is acquainted with the rare merit it possesses, as being one of the few books which may be read with pleasure and profit both by the public and the profession. To the former it is adapted by the simplicity and clearness with which the body of valuable information it contains is put forth; to the latter it recommends itself by the scientific accuracy, sterling sense, and sound discrimination which pervade every portion of it, and which render it unsurpassed, as a treatise on the principles of dietetics, by any works of more ambitious character.

We learn from the Editor's advertisement to this edition, that owing to the weak state of the Author's health for two years before his death in 1847, his strength was inadequate to such revision and improvement of the work as were necessary to place it on a level with the science of the day; so that the sixth, seventh, and eighth editions which were called for in rapid succession, and which brought up the total British circulation to 16,000 copies, were mere reprints of the fifth, which was issued in 1845. Shortly before his death, Dr. A. Combe expressed the wish that his nephew, Dr. J. Coxe, should undertake that revision of his works which he saw it would never be in his own power to effect; and the edition before us constitutes the first-fruits of that gentleman's editorial labours. We have great satisfaction in expressing our hearty approval of the manner in which he has performed them. He has gone to this task with the intention of amplifying statements already made with the materials supplied by the progress of discovery, of correcting such as have been shown to be erroneous, and of illustrating and enforcing by new examples the rules laid down by the author for the preservation of health. It is a remarkable proof of Dr. A. Combe's clear sightedness, that, notwithstanding the severe and researching revision to which the work was subjected by the Editor, it was not found necessary to omit above three pages in all, whilst the additions extend to about thirty-six pages: and we may add that, in the course of our own inspection of it, we have scarcely met with any passage which would not be equally appropriate if the work were now issued for the first time.

The additions made by Dr. Coxe have reference chiefly to the composition and properties of different kinds of food, as determined by the more recent chemical researches; and they are, for the most part, in good keeping with the method and style of the original.

> "Considerable difference of opinion," he remarks, "still exists on many points connected with this department of physiology; but though occasionally stating the opposite views, I have in general thought it better simply to give those which appeared to me most probable, rather than incur the risk of confusing the general reader with controversial statements. The popular nature of the work frequently prevented me from entering into details which would have been called for in a more scientific treatise."

In place of criticising a few passages in which the editor has expressed himself a little more strongly and exclusively than we think he was warranted in doing, we shall cite the following passage from among his additions, as containing a record which depicts in colours but too forcible the fearful consequences of systematic departure from the laws of health;

> "The 'Maison centrale' of Nîmes is a large penitentiary containing an average population of nearly 1200 convicts, most of them adults—the minimum age being eleven. The chief physician is M. Boileau-Castelneau, who has been connected with the prison for twenty-five years, and who vouches, from his own knowledge, for the truth of the statements we are about to repeat.* The following table shows the number of prisoners, and the number of deaths during a period of nineteen years; the annual average of the former being 1194, and of the latter 94, or 1 death in 12·70 prisoners.

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* See Annales d'Hygiène Publique, Jan. 1849.

Years.	Number of Prisoners.	Deaths.	Proportion.
1829	1147	122	1 in 9·40
1830	1212	142	1 “ 8·50
1831	1000	64	1 “ 15·62
1832	1050	72	1 “ 14·58
1833	1049	102	1 “ 9·80
1834	1226	85	1 “ 14·41
1835	1219	107	1 “ 11·34
1836	1288	98	1 “ 12·12
1837	1306	115	1 “ 11·35
1838	1256	102	1 “ 12·32
1839	1272	162	1 “ 7·85
1840	1216	135	1 “ 9·07
1841	1173	97	1 “ 12·06
1842	1224	69	1 “ 17·76
1843	1226	52	1 “ 23·52
1844	1290	56	1 “ 23·88
1845	1328	63	1 “ 19 63
1846	1124	68	1 “ 16·52
1847	1184	85	1 “ 13·57
Mean.	1194	94	1 “ 12·70

“The average mortality among the inhabitants of the town of Nîmes, of the same age and sex, amounted to 1 in 49·9; consequently the mortality of the prisoners was four times greater than that of the free population. M. Boileau-Castelneau enables us to account for this fearful sacrifice of life, by stating that the wards of the prison were over-crowded and ill-ventilated; that in winter they were insufficiently heated; and that the food of the prisoners was coarse and innutritious, while more labour was exacted of them than their strength was fully adequate to perform. If now we consider that, in addition to these causes of disease, the prisoners were exposed to the tyranny of brutal keepers—that they were frequently loaded with irons, and occasionally severely whipped—we shall not be surprised at the frightful mortality which literally decimated these unfortunate men. It will be observed from the table, that the mortality underwent considerable variation in different years. In 1828 the number of deaths was 81; but as the number of prisoners is not stated, we cannot fix the relative mortality. It may be assumed, however, to have been about 1 in 14. From this number it rose in 1829 to 1 in 9·40, and in 1830 to 1 in 8·50; and fell in the year following to 1 in 16·62. In 1839 it reached 1 in 7·85, and in 1840, 1 in 9·07: and then gradually diminished, till, in 1844, it fell to 1 in 32·88, the smallest mortality noted. In 1845 it began again to increase, and in 1847 amounted to 1 in 13·57.

“Having made this survey, we may now ask ourselves What reason is to be assigned for these variations? Their cause is most clearly pointed out by M. Boileau-Castelneau, and conveys a most instructive lesson. The winter of 1828-9 was, at Nîmes, unusually severe and prolonged. The thermometer, for a month at a time, stood below the freezing point, and repeatedly marked 21° Fahr. In the winter of 1829-30, the thermometer, for 36 days in succession, stood below the freezing point; and during 11 days at this time the temperature oscillated between 23° and 12°. A thaw of 9 days then took place, followed by a second frost that lasted 10 days, during which the extreme cold was 13° Fahr. The consequences of this unusually low temperature, acting upon systems debilitated by insufficient food, impure air, and work disproportioned to the strength, became apparent in the increased mortality. Those whose constitutions were most impaired were thus carried off, and there were consequently fewer weaklings left to swell the list of deaths in 1831. M. Boileau-Castelneau assigns no reason for the great mortality of 1833. We pass on, therefore, to 1839 and 1840. The diet provided by the State was at all times insufficient to preserve the convicts in health and strength, taking into account the labour that was required of them ; but they had it in their power in some measure to increase the quantity and improve the quality of their diet, by laying out at the canteen the proportion of their earnings which was at their own disposal. But on the 10th of May 1839, a ministerial ordinance was issued, limiting the alimentary articles allowed to be sold at the canteen to potatoes, cheese, and butter. Wine and tobacco, which had previously been allowed, were prohibited. In order fully to appreciate the amount of misery thus entailed upon the prisoners, the reader should be aware that, in the south of France, wine is considered an absolute necessary of life. It is drunk by the poorest of the people, and appears essential to enable them to digest their coarse, unstimulating food. Within the town of Nîmes it costs about a penny the litre (1¾ pint) ; and without the wall, where it is free from duty, the labourer may drink it at a penny the hour. Potatoes, butter, and cheese could not replace its stimulus ; and besides, from the south of France containing no pastures, the butter was bad and dear, and the cheese also dear. Hence the pittance at the disposal of the prisoners was more than ever insufficient to supply the deficiency of nutriment. Potatoes, we have seen, constitute a bulkly and comparatively innutritious article of diet, ill-adapted for giving support to debilitated constitutions.

"The consequences of this ill-advised ordinance speedily became manifest. The mortality in 1839 reached the appalling height of 1 in 7·85 ; and it continued very high during the following year, notwithstanding the relaxation of the rules—the diet being increased, and the prisoners receiving small supplies of wine and tobacco at exhorbitant rates, principally through the connivance of the officials. This continued height of the mortality attracted attention, and an endeavour was now seriously made to ameliorate the condition of the prisoners. The old keepers were removed, and their places supplied by the *Frères des écolés chértiennes*. Moral persuasion was as much as possible substituted for physical restraint, and the diet was improved in quantity and quality. In consequence of these measures the mortality immediately began to decrease, and it reached its lowest point in 1844. But fresh errors were now committed ; the *Frères des écoles chrétiennes*, disgusted at being thwarted in the plans which they thought it right to follow, gave up their charge, and the old system of hard work and cruel punishments was again introduced. At the same time, the pittance at the disposal of the prisoners was reduced by a ministerial ordinance to a mere fraction, so that they were again exposed to the evils arising from insufficient food. The natural consequences ensued ; the mortality increased so much, that, in 1847, it attained the height of 1 in 13·57. But a promise of better days came at last : in February 1848 the government of Louis Philippe was overthrown, and one of the first acts of the revolutionary government was to issue an ordinance putting a stop to the convict system of labour as it was then carried on. This act was a reprieve from death to many of the miserable half-famished and over-tasked prisoners of Nîmes. While, during the seven months ending October 31, 1847, the number of deaths had been 44 ; during the corresponding seven months of 1848, after labour had been abolished, the deaths were only 16. Could stronger evidence be adduced of the necessity of proportioning the quantity of food to the labour required ? The human frame, says M. Boileau-Castleneau, is as much a machine; and, in that respect, as much subject to the influence of the physical laws, as the steam-engine itself. If the former be supplied with impure air and insufficient food, and the latter with muddy water and scanty fuel, at first imperfect action, and speedily complete cessation of their functions, will ensue in both. We cannot close our remarks on this most melancholy catalogue of evils without doing M. Boileau-Castelneau the justice to say, that he addressed remonstrance on remonstrance to the French government on the evils to which they so recklessly exposed the prisoners, though unfortunately without success. He now expresses his earnest hope that the ministers of the republic will be more considerate of the welfare of the people confided to their care, than were their predecessors of the monarchy.

> "Perhaps it may be well to show, before concluding, that imprisonment, when judiciously administered, is far from being necessarily destructive to health. For this purpose we may cite the recorded experience of the Perth Penitentiary. The average number of prisoners in the year 1847 was 351, exclusive of lunatics; and the mortality only 1—two prisoners, however, having been dismissed on certificate that further imprisonment would endanger life. In order fully to appreciate this result, it must be remembered that 1847 was the year during which influenza prevailed, and that no fewer than 86 prisoners were attacked by that epidemic. In this prison, however, the wards are large, well ventilated, and sufficiently heated; the food is abundant and of good quality; the labour is not disproportioned to the strength, and daily exercise in the open air is not only permitted, but, if necessary, enforced. While, therefore, in the prison of Nîmes, the laws of health were outraged in every possible way, they were observed in the Perth prison with the greatest care. The results were—in the one case a mortality rivalling that of a fever-hospital; in the other, a state of health considerably above the average or that of the country." (pp. 164-6.)

Art. XIII.

On the Logical Applications of Physiology to Pathology: an Introductory Lecture to the Course of the Principles and Practice of Medicine. By Walter H. Walshe, m. d., Professor of Medicine in University College, &c. &c.—*London*, 1849. 8vo, pp. 36.

The purpose of this lecture is to lay down the method, according to which, in Professor Walshe's opinion, the science of Pathology is to be directly and immediately formed. This method is comprised under the following heads:

> "1. Cases of disease submitted to Observation, lead to the establishment of *Individual Pathological Phenomena.*
>
> "2. Individual Pathological Phenomena, submitted to Interpretation, lead to the establishment (provisionally) of the *Nexuses of those Phenomena.*
>
> "3. These provisionally-established nexuses, submitted to Numerical Comparison, are judged, and so lead to the establishment of *General Laws of Diseases.*
>
> "4. The General Laws of Diseases, submitted to Classification, constitute the *Science of Pathology.*" (pp. 5, 6.)

Professor Walshe feels himself called upon, in particular, to combat the error, which he seems to consider a prevalent one, of supposing that "Physiology (vital, chemical, or physical) is the basis of pathology, in the sense that acquaintance with the one secures by involution acquaintance with the other;" and a considerable part of his lecture is occupied in the demonstration of what physiology *cannot* do. In this he shows, as might be expected, a thorough mastery of his subject, which is treated with all the force and acumen of the practised logician; and we have not a word to say in opposition to, or qualification of, any of his assertions, save that which makes the "numerical method" the sole means of obtaining the higher principles of pathology. But it seems to us that he is arguing throughout rather upon what the *existing* physiology will not do, than upon what physiology may not be expected to do when rendered more perfect as a science; and looking to the advance that has been made in it within the last twenty years, and the entirely new aspect which it has taken even within the last ten, it scarcely seems to us wise or fair to assign the limit to its progress, and to assert that hereafter its power of *prediction* may not be much greater than it is at present.

In pointing out, with his characteristic clearness, what physiology *cannot* do for pathology, Professor Walshe does not omit to notice what it *can* do; as in the following passages:—

> "Secondly; the pretensions of physiology to explain and connect the phenomena of disease, as actually observed, present themselves for consideration. This is a species of pretension, *pimâ facie*, not illogical, and hence more likely to be well-founded, than that we have just dismissed. And it actually is better founded; many of the simpler departures from health, and especially many perversions of single functions, may be plausibly explained by the current notions of physiology: of the latter, Dr. Marshall Hall's beautiful and deeply philosophical system of excito-motory innervation furnishes a striking example. But there is an abrupt limit even to this power. I fear that, in regard of the more complex diseases, physiology is no more an Œdipus, than it, upon inquiry, proved a Cassandra. That physiology cannot explain the whole sequence of events, and relink throughout the broken chain of necessary and contingent circumstances, of any given disease, is unfortunately the veriest of truisms: still it enables us, here and there, to seize a causation, and establish a nexus,—no small triumph. We have then, legitimately, hope in store for the future.
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> "Thirdly; physiology may be considered as suggestive of points of inquiry in pathology, and as establishing a standard of reference for morbid conditions and processes. Now here are, I believe, the true functions of physiology in regard of pathology; here the field is peculiarly its own, and here the good it may work out is almost incalculable. On some occasions suggesting points altogether novel for the investigation of the pathologist, at others giving a new aspect to facts deemed familiar, and in either case lending zest to inquiry; in this sense it is that advances in physiology must almost of necessity, immediately or more remotely, contribute to advances in pathology. In this sense it is, that he who labours in the former, is sowing seed which, in due season, shall bear fruit in the latter. In this sense it is, that sound physiology promotes sound pathology. In this sense it is, that the hymn to the merits of physiology can neither be too loud nor too long. In this sense it is, that I shall have repeated occasion, in the progress of the course, to draw your attention to our debts, past and positive, future and probable, to physiological science." (pp. 14-16.)

These passages, however, contain nearly the whole of what is said by Professor Walshe in favour of physiological study; and we must own that our impression of the lecture is, that, although every word of it be true, its tendency is, on the whole, to *isolate* pathology from physiology, and to show how *little* the latter can do towards the building-up of pathological science. This, no doubt, results from a pardonable zeal in behalf of his own department of science, and from a desire, in which we heartily concur with him, to enforce upon the students committed to his training the necessity of trusting to observation of the phenomena of disease, as the real groundwork of pathology. But it becomes us, who endeavour to hold the critical balance with even-handed justice, to remark, that we think that such an isolation of pathological and physiological phenomena is unwise, and tends to retard science instead of advancing it. The tendency of modern inquiry has unquestionably been to show that almost every diseased action is but a perversion, by *excess*, by *diminution*, or by *depravation*, of some normal function; and, consequently, that only through an acquaintance with the latter can the former be rightly understood, either as to its cause, its nature, or its tendencies. The body in health, and the body in disease, is the *same* body; and whilst our knowledge of the phenomena of disease can only be based, like our acquaintance with the phenomena of healthy action, on direct observation, our power of *interpretation* of those phenomena must depend mainly upon the extent of our acquaintance with the laws of physiology. The two sciences, in an enlarged view, are in fact one; and in cultivating either separately, we are continually trenching upon the borders of the other, much more than we may be at first aware. Thus every *experiment* made by the physiologist is really the induction of an abnormal or *pathological* condition, from which, as also from the phenomena of natural disease, he is enabled to deduce inferences which the most persevering observation of normal action would never have revealed to him. And so, in the observation of disease, we cannot ascertain what really *are* its phenomena, until we are acquainted with the normal actions of which they are perversions; nor can we make the least approach to anything more than an empirical association of these phenomena, unless we are acquainted with the mode in which the healthy actions of the organs which manifest them are linked together. We think that a careful consideration of the history and present state of pathology will show that its advance towards the character of a science has taken place *pari passu* with that of physiology; and that those departments of it are at present best understood, in which physiology is most advanced. Hence we look with no favorable eye upon any attempt to lower the value of physiology in the estimation of medical students. Although an instance may here and there present itself, in which an undue amount of time and attention are given to this portion of the curriculum, yet we believe that the experience of most physiological teachers will accord with our own observation,—that the medical students, as a body, have a strong preference for that which they regard as "practical," and no particular fondness for the "scientific;" and thus that there is rather a danger of physiological study being neglected, than of its being held in too high an estimation.

It is our intention, at no distant period, to take up the whole subject of "medical philosophy," and to endeavour to show, in some detail, what is the present relation of the different branches of medical inquiry, what are the objects at which we must aim in pursuing these inquiries, and what are the methods by which they may be most effectually advanced. And, in the meantime, we would commend to the attention of Professor Walshe and of our readers, those admirable remarks of Dr. Chalmers,* in which he points out the marvellous adaptation that exists between the objects of human knowledge, and the powers and tendencies of the human mind; whence it arises, that there is not an object of inquiry which does not find some one willing and able to devote himself to it, and feeling in it an engrossing and somewhat exclusive interest. From this it happens that every department of inquiry is more effectually advanced than it could be if there were no such special *nisus;* but, on the other hand, there is a tendency, against which every such votary should be especially on his guard, to undervalue those departments of inquiry, in which he is comparatively uninterested. "Each," says Dr. Chalmers, "is right in the admiration he renders to the grace and grandeur of that field which himself has explored; but all are wrong in the distaste they feel, or rather in the disregard they cast on the other fields which they have never entered. We should take the testimony of each to the worth of that which he does know, and reject the testimony of each to the comparative worthlessness of that which he does not know."

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* Natural Theology, Chap. V, "On the Adaptations of the Material World to the Moral and Intellectual Constitution of Man."

PART SECOND.

Bibliographical Notices.

Art. I.—*First Principles of Medicine.* By Archibald Billing, M.D., A.M., F.R.S., &c. &c. Fifth Edition, revised and improved.—*London*, 1849. 8vo, pp. 332.

Any notice of a work so well-known to the profession, and so highly appreciated by it, as to have arrived at a fifth edition; might almost seem superfluous. But considering that new editions, like new works, must be tried by the test of their adaptation to the wants of the time at which they appear, and not by the standard of merit by which the originals were fairly judged at the time of their first appearance, we have deemed it right to subject this volume to a critical examination. The reault of this is scarcely what we could desire; for although it is obvious that on many points the author has profited by the progress of discovery to add to and expanded his previous doctrines, it seems to us that he has scarcely used as much diligence in their correction, as would be required to place his work on the level of the Physiology and Pathology of the present time. Thus, for example, we find him proclaiming (p. 10) as emphatically as ever, the non-muscularity of the arterial walls; notwithstanding that there are not now, we believe, two opinions among microscopists in regard to the contrary doctrine. So again, he continues to speak of the nutritive operations as consisting in "a perpetual *deposition* by the capillary system of *new matter*, and decomposition of the *old*, all over the frame, influenced by the nerves." (p. 21.) This is, in fact, the leading idea of the book. In several instances, too, Dr. Billing uses, without explanation or qualification, the now antiquated phraseology in regard to "vascular action." As at present viewed by the scientific physiologist, however, the vessels are entirely *passive* in the act of nutrition: which results from the powers of appropriation inherent in the self-developing elements of the tissues, and is rather controlled and modified by nerves, than dependent upon their agency. We know, however, the difficulty which authors who have attained Dr. Billing's time of life, and who are not forced by the necessities of oral teaching to the adoption, not merely of new doctrines, but of new forms of expression, experience in abandoning the phraseology which has become interwoven (as it were) with their mental texture; and we do not advert to this latter point from any desire to find fault with a writer who has done much in various ways to improve the habits of thought prevalent in our profession, but simply to discharge our duty to our readers, by putting them on their guard against the influence of bygone doctrines, from which Dr. Billing has not been able altogether to emancipate himself.

In spite of this defect, however, the general aim and spirit of the book are so excellent,—there is such a happy combination of the scientific and the practical,—and such a constant recognition of the principle that the phenomena of disease can only be rightly appreciated when those of normal or healthy action shall have been determined,—that it cannot be read without profit even by the best instructed, whether practitioners or students. We anticipate, therefore, that it will continue to maintain its ground in the estimation of the profession, notwithstanding that it now has to compete with treatises of more pretension, which have made their appearance since its first publication.

Dr. Billing still adheres to his somewhat singular plan of not dividing his book into chapters or sections, and of not affording any general idea of the subjects of which it treats by a table of contents, running-titles, or marginal titles. The index, however, has now undergone considerable enlargement, and facilitates reference to the multifarious contents of the volume.

Art. II.—*The Sea-side Book; being an Introduction to the Natural History of the British Coasts.* By W. Harvey, m.d., m.r.i.a. Keeper of the Herbarium of the University of Dublin. New Edition.—*London*, 1849. 18mo, pp. 256. With numerous Illustrations on Wood.

This little book is one of the most acceptable additions to the popular literature of science, that it has ever been our fortune to meet with. Himself an accomplished and enthusiastic naturalist, Dr. Harvey has brought to his work such a combination of thorough practical acquaintance with all that he describes, and of genial enjoyment in the endeavour to make others love the pursuits which have afforded so much happiness to himself, as renders his work at once a most admirable introduction to the study of Marine Zoology and Botany, and a most agreeable companion for the sea-side visitor or resident. He does not attempt systematic description, but takes the objects as they will naturally present themselves to an observer who has his eyes about him, as he walks along the sands, clambers over a rocky shore, or explores the sea-bottom with the dredge. Thus he passes in review some of the most interesting forms of Marine Plants, Zoophytes, Molluscs, Crustaceans, and Birds; not entering into a detailed account of any one, but noticing just those points in each, which are most fraught with interest to the unscientific observer, and which are most likely to lead him to further inquiries. Among these we find some of the most remarkable novelties which recent researches have brought to light; such as the wonderful history of the development of the Medusæ, and the curious and unexpected metamorphoses of the Crustacea. We notice one or two omissions to which we would direct the author's attention, as we are sure that he must be ere long called upon for a new edition of so admirable a production. In his account of the 'Microscopic Wonders of the Sea,' he might advantageously introduce some notice of the structure and habits of the living Bryozoa, whose polypidoms are described in a preceding chapter; there is no part of the coast where some species of these do not occur; and we know of no marine objects more calculated to interest alike the scientific and the unscientific observer. Again, it seems somewhat strange that in a "Sea-Side Book" no notice whatever should be taken of Fishes; the only mention of the class that we have encountered, being in the chapter on "the Sands and their Productions," in which a description is given of the egg of the dog-fish, well known under the name of "Mermaid's or Fairies' purse."

When we say that the work is published by Mr. Van Voorst, and that the illustrations are fully equal, in beauty and correctness, to those of the scientific treatises which have gained for him such an honorable name, we have given them the highest encomium in our power.

We add, as a specimen of our author's style, one of the passages in which he takes occasion to indicate the true spirit in which Natural History should be pursued. After pointing out the absurdity of that childish egotism, which plumes itself on the discovery of a new shell or a new sea-weed, as if any one else visiting the same spot might not have done the like, he continues—

> "I am very far from condemning the pure-minded joy, one of the most delightful feelings of a naturalist, which springs freely in his heart and glistens in his eye, when first it rests upon an unknown object. This feeling is a mixture of warm affections which cannot confine themselves to a single breast, but instantly seek for sympathy. The first impulse is, to exhibit the novelty to another that he may share our delight, and that we may see him do so. And if there be none to sympathise, how naturally the grateful heart looks up and worships the Author of its enjoyment! Cold as the heart's feelings may be at other times, the fervour of the moment awakens all its better nature. This enjoyment may seem a small thing to call forth gratitude, when we are accustomed to receive so many blessings at the hand of God in a thankless or indifferent spirit. These blessings we seem to look on as our birthright, as members of *His* family; but the discovery of a new object among the works of creation acts like a special revelation, however small, to ourselves as individuals, and this feeling of individuality touches a chord in the human breast which is ever ready to vibrate. The man whose life is saved by what appears to be a special interference of Providence in his favour, feels strongly what all ought to feel, who know that at every moment of our lives the same care is exercised over us. But the care in the one case is for the general good, the interest of which often calls for individual suffering; in the other, the welfare of the individual seems the special object of providential forethought. The latter brings God, as it were, personally before us. He is no longer merely the Creator exercising oversight over a vast dominion, but he is our preserver, protecting us in our going forth and coming in. Similar, though weaker, are the feelings called forth by a closer insight into Nature, and a more intimate acquaintance with her works. When we begin the study, our conception of the Author of Nature may be diffuse—a vague idea as of some illimitable power, in ceaseless action; but the more we pursue this delightful study, the more we recognise, if we work in a proper spirit, proofs of the *personality* of God. Though now we can know Him but in part, and only see Him reflected in his works, as it were, 'through a glass darkly,' we look forward to a time when we shall behold Him 'face to face,' and shall know Him 'even as we ourselves are known.'" (p. 20.)

Convinced as we are, that there is no more healthful occupation of the mind for those who need a pursuit, and no more delightful resource for those who need a means of recreation, we cordially recommend this little volume to the notice of our readers; both for the interest which we feel sure that its perusal will excite in themselves, and for the benefit which they may confer on the young people of the families with which they may be professionally connected, by bringing it under their attention. Sure we are that the annual visit to the sea-side may be made doubly invigorating, both to body and mind, when it is occupied in the search for objects that cannot fail to interest the mind once rightly directed to them, instead of being whiled away in the languid contemplation of the advancing and receding tide, in the frivolous literature of the marine library, or in the senseless and not always innocent gossip of the watering-place. And when it is borne in mind how rich a harvest of discovery has been reaped within only a few years, by those who have devoted even scanty opportunities and limited time to the investigation, it is obvious that the pursuit will not only have the attraction of novelty to the beginner, but that he may confidently expect to find new sources of interest continually arising before his mind, and even to contribute something of real value to the common stock of knowledge.

Art. III.—*On the Habitual Use of Opium in Singapore* By R. Little, Esq., Surgeon.—*Singapore.* 8vo, pp. 80.

This pamphlet has been forwarded to us, under the idea that a notice of its contents in our pages may prove somewhat instrumental in drawing attention to the abominable practice it exposes. We fear that much good will not be attainable thereby; for the home authorities have their hands sufficiently full of various physical and moral grievances, calling for redress at our own doors, without diverting their attention to matters properly within the scope of their representatives in the colony in question. The author allows that opium-smoking, with all its baneful consequences to individuals, is less injurious to society than excessive drinking, inasmuch as it does not like this excite to the commission of fearful crimes against property or persons, but merely leads to the petty pilfering sufficient to obtain the means for its continuance; while, moreover, by destroying after a while the power of provocation, it prevents that plentiful production of diseased organizations which spring from the loins of the drunkard. Even as regards the individual, the practice of opium-smoking would seem to be less destructive to life than spirit-drinking, or at all events less speedily so; for although the author takes Dr. Christison somewhat seriously to task for having expressed an opinion that opium-eating does not shorten life to the extent that *à priori* it might have been expected to do, yet his own pages show that the still more baneful practice of smoking opium, which prevails at Singapore, is often consistent with prolonged existence. However this may be, it is a dreadful practice, often commenced from mere imitation, or as an amusement; it speedily acquires so fascinating a hold of its victim, as to render his life utterly wretched and quite insupportable, unless it be periodically indulged in; and at last it gives rise to the development of chronic disease in the digestive or urinary organs, which eventually, though often remotely, terminates in death. It is a most expensive habit, the gratification of which plunges the poorer classes into the direst poverty with all its consequences.

The author estimates the population of Singapore at 70,000, of which number 40,000 are Chinese; and calculating from the amount of opium consumed, he estimates the number of opium-smokers at 15,000. It is not surprising, then, that a man evidently of a very humane disposition, and called on in his professional capacity to struggle with the results of this vicious habit, should feel anxious to abolish it, or, at all events, to limit its indulgence. Unfortunately the suggestions he is enabled to make to this end are very few, and almost limit themselves to some restriction upon the number of licensed smoking-houses, and the publication of tracts exhibiting to the people the mischievous nature of their practices. We are glad to find that he does not recommend any attempts at the direct suppression of the practice on the part of the government; as such attempts would infallibly lead to an aggravation of the evil, by rendering that which is now an open practice a clandestine one, and by handing over to the smuggler the proceeds of the now legitimized sale. We are not surprised at warm-hearted enthusiasts both in this and other countries, calling for the suppression of acknowledged and scandalous vices by the direct interposition of the strong hand of power; but unfortunately we cannot make people either moral, religious, or even prudent, by act of parliament. We must trust to the slow but sure operation of educational influences, understood in their widest acceptation; the true business of the legislature consisting in the removal of impediments to the operation of these. As long as the lower orders are subjected to the depressing effects of the inhalation of a pestiferous atmosphere, of the deprivation of light, and of the neglect of personal cleanliness; as long as they are deprived of the means of instruction, and the opportunity of wholesome recreation; so long will large masses of them resort to the blazing gin-palaces with their stimulating drinks, their betting-lists, and their penny concerts. But that we are undergoing a gradual emancipation from this lamentable state of things, who can doubt? Ill would it become an age to do so, or to despair of improvement, that recollects how short is the time during which intemperance has been considered discreditable in even the upper and middle classes; that has witnessed the passing of an enactment for securing henceforth a cheap supply of the staff of life, and of a measure so pregnant with grand results for social education, as the penny postage; one, too, in which the question of sanitary reform has become a leading topic of the day, and which has witnessed the erection of public baths, and improved dwellings for the poor, the foundation of ragged schools, and the establishment of cheap excursions.

Mr. Little thinks that the government at Singapore might do something, by devoting a small proportion of its receipts from the sale of opium to the procuring substitutes for its use for the poor creatures who may feel disposed to try to leave it off. In cases of this description that he himself has met with, he has diminished the quantity allowed daily, substituting at first bitter tinctures, and afterwards bitter infusions, giving at the same time a good and nutritious diet.

Art. IV.—*A Manual of the Dissection of the Human Body*. By Luther Holden, F.R.C.S., Demonstrator of Anatomy at St. Bartholomew's Hospital. Part II.—*London*, 1849. Post 8vo, pp. 200.

For reasons to which we alluded when noticing the first part of this work, we shall abstain from any critical notice of its contents, until its completion shall have enabled us to form a better judgment of its plan and execution. The part before us contains the Dissection of the Head and Neck, the Internal Dissection of the Thorax, and the Dissection of the Back.

Art. V.—*A Popular History of British Sea-weeds; comprising their Structure, Fructification, Specific Characters, Arrangement, and General Distribution; with Notices of some of the Fresh-water Algæ.* By the Rev. D. Landsborough, A.L.S.—*London*, 1849. Square 16mo, pp. 368. With Twenty-two Plates.

This is one of a series of popular treatises on 'British Natural History,' published by Mr. Lovell Reeve, which aims at being for the beginner what Mr. Van Voorst's series of more elaborate treatises is for the scientific naturalist. The peculiar character of Mr. Reeve's series is, that they are illustrated by *coloured* plates; which, in such a case as the present, is of peculiar advantage The volume before us contains eighty figures of the principal British Algæ, well drawn upon stone and very truthfully coloured; together with a series of uncoloured figures giving analyses of the fructification; and this, with a considerable amount of letter-press, at an extremely moderate price. The author is creditably known as an industrious and well-informed marine botanist; and he writes and describes, in most departments, entirely from his own observations. Almost every one who pays a passing visit to the sea-shore, has his attention attracted by the beautiful forms and colours of the Algæ with which it is clothed; and Mr. Landsborough shows with how much more interest they become invested, when something is learned respecting their structure, habits, and uses. As an illustration of his mode of treating his subject, we shall extract a short passage relating to the *Laminaria digitata.*

> "In its native state it is well entitled to rank, in Europe at least, among the giants of the marine forest. When a full-grown plant has by stress of weather been torn from its moorings, and stranded on the shore, never more to wave in the deep, it is a kind of treasure-trove, a well-stored cabinet to the naturalist. If he is a conchologist, he is almost sure to find the beautiful *Patella pellucida* on the slimy frond; and at the very centre of the stout fibrous roots he is still more sure of *Patella cærulea*, snugly ensconced in a cave which it has dug out for itself, where it is quite safe from everything but an uprooting storm. When the tangle has come from deep water, it frequently brings with it some rare *Nudibranchs.* The stem is often adorned with sea-hair (*Sertularia operculata*); and various kinds of coral lines may be found on the roots. After the young naturalist has collected all that can be seen, let him put the tangled root into a basin of sea-water, and in the course of an hour or so, he will be astonished to see the protean tribes of little crabs, annelides and other strange creeping things that issue forth to reconnoitre their new limited locality." (p. 114.)

We shall hope to see other departments of natural history, not yet embraced in this series, treated of in the same spirit as the 'British Sea-weeds,' by writers as well qualified as Mr. Landsborough to do justice to their respective subjects, and illustrated by plates of equal excellence.

Art. VI.—*The Races of Man, and their Geographical Distribution.* By Charles Pickering, M.D., Member of the Scientific Corps attached to the United States Exploring Expedition.—*London*, 1849. 4to, pp. 448. With a Map and Twelve coloured Plates.

This is one of the series of valuable scientific works, in which have been embodied the most valuable results of the investigations which the United States Exploring Expedition was sent forth to prosecute Its title scarcely indicates the real nature of its contents; for this would lead us to suppose that it is a complete systematic treatise on Ethnology; whereas it is a collection of materials, derived from original observation and inquiry, and having no claim to systematic completeness, but possessing the higher merit of being a valuable contribution to our existing stock of knowledge, regarding the physical conformation, psychical characters, and mode of life of many tribes, with which we had previously but little acquaintance. It was a great advantage to such an expedition, that it should contain among its scientific corps a naturalist of Dr. Pickering's eminence; the fidelity of whose observations, and the sagacity of whose judgments should dispose us to receive his statements with a confidence that must be withheld from those of a less competent witness. The result has not disappointed us; and we can strongly recommend his work to all who are pursuing ethnological study, as one which is indispensable to their inquiries. The following is the classification of races proposed by Dr. Pickering, on the characters supplied by the colour of the skin, the hair, and the features:

"*a.* White.

"1. *Arabian.* The nose prominent, the lips thin, the beard abundant, and the hair straight or flowing.

"2. *Abyssinian.* The complexion hardly becoming florid, the nose prominent and the hair crisped.

"*b.* Brown.

"3. *Mongolian.* Beardless, with the hair perfectly straight and very long.

"4. *Hottentot.* Negro features and close woolly hair, and the stature diminutive.

"5. *Malay.* Features not prominent in the profile, the complexion darker than in the preceding races, and the hair straight or flowing.

"*c.* Blackish-brown.

"6. *Papuan.* Features not prominent in the profile, the beard abundant, the skin harsh to the touch, and the hair crisped or frizzled.

"7. *Negrillo.* Apparently beardless, the stature diminutive, the features approaching those of the Negro, and the hair woolly.

"8. *Indian,* or *Telingan.* The features approaching those of the Arabian; and the hair, in like manner, straight or flowing.

"9. *Ethiopian.* The complexion and features intermediate between these of the Telingan and Negro, and the hair crisped.

"*d.* Black.

"10. *Australian.* Negro features, but combined with straight or flowing hair.

"11. *Negro.* Close woolly hair, the nose much flattened, and the lips very thick." (p. 11.)

This classification, however, is not regarded by Dr. Pickering as by any means complete; but he merely employs it to arrange the varieties of feature, which he has himself had the opportunity of observing. He seems fully aware, that the same race may present very wide diversities in complexion and features; and that, on the other hand, a correspondence in these particulars cannot be looked upon as valid evidence of the identity of race. He does not express any decided opinion on either side of the much controverted question of the specific unity or specific diversity of the human races; but we gather from the general tone of his work, and from the views put forth in particular parts of it, that he is favorable to the idea of their origin from *two* centres, an Asiatic and an African. It is rather curious to find him thus (in conformity with the idea of the essential inferiority of the Negro races, which is unfortunately not only entertained as a matter of speculation, but practically acted on in the

United States) fundamentally isolating the African races from the Asiatic, at the very time when the most distinguished Ægyptologists are coming to the conclusion, that the Egyptian race, which was decidedly African in its physical conformation, was derived from an Asiatic stock, as seems proved by the glottological researches of Bunsen and others.

One of the most valuable and original parts of Dr. Pickering's work, is that in which he has brought together a large amount of information in regard to the plants and animals of different countries, which have been introduced, intentionally or otherwise, by human agency. This collection of facts displays a large amount or research, and will prove extremely useful to the scientific naturalist, for whom everything that relates to the geographical distribution of organized beings has an increasing value, as the laws of that distribution are coming to be better understood. These facts, too, have an important bearing, in a great variety of ways, upon ethnological inquiry; more especially in relation (as Dr. Prichard has shown) to the general laws of the distribution of species; and also in reference to the habits and usages prevalent among different tribes, the memorials they have left to us, &c., which can only be properly understood, when we know in what way they have become possessed of the plants and animals of whose uses they have taken advantage.

The plates accompanying the work are beautifully executed portraits of individuals considered by Dr. Pickering as characteristic of the races he enumerates. It is obvious that in the execution of these, no pains or expense have been spared by the government; on which the whole "getting-up" of this volume, and of several other treatises having the same origin, reflects the highest credit.

ART. VII.—*Demonstrations of Anatomy; being a Guide to the Knowledge of the Human Body by Dissection.* By GEORGE VINER ELLIS, Junior Professor of Anatomy in University College, London. Second Edition, rewritten.—*London,* 1849. Fcap. 8vo, pp. 774.

WE noticed, soon after its appearance, the publication of the first part of the new edition of this valuable work; and we have now the satisfaction of announcing that it has been completed, as then promised by the author, in time for use during the present session. The peculiar character of the work may be best understood from the following extract, in which it is so lucidly stated, that no one can have any difficulty in at once distinguishing its plan and objects.

> "In the examination of a region, the attention of the student is directed first to its limits, to the superficial prominences of bone or muscle, and to the impressions that point out the situation of the subjacent vessels. The different strata interposed between the surface and the bones are next examined in succession, with reference particularly to the natural position of the several objects, and their connexions one with another, so that they may be observed in much the same order as they would be met in an operation of surgery. The anatomical description of the whole is likewise arranged in conformity with the mode of dissection, and each blood-vessel, nerve, or other structure, is described only to such an extent as it may be laid bare in the region under examination." (Preface.)

This object has been aimed at, to a certain degree, in various other works; but it has not, to the best of our knowledge, been anywhere attained in anything like the same perfection, Having carefully examined several parts of this treatise, we have no hesitation in expressing our conviction that it is the best "guide to dissection" in our language, its *matter* and *manner* being equally good. It is, we think, a common fault of professional authors, that in all that concerns the *mechanism* of book-making, they are very deficient; so that good material is frequently put forth to very bad advantage. Of course this is less likely to be the case in an Anatomical treatise, the subject of which enforces a considerable observance of method, than in most other medical writings: but we have never met with even an anatomical treatise, in which the *lucidus ordo* was so well and so obviously displayed. In particular we would notice the great advantage derived from the *marginal* notifications of the subject of the text; a feature which is too much neglected in these day of cheap production, but which adds extremely to the facility of reference, and keeps the attention of the student alive to the main points of the description. We do not know of any other recent work, save Quain's 'Anatomy,' in which this useful plan is retained.

ART. VIII.—1. *Portraits of Diseases of the Skin.* By ERASMUS WILSON, F.R.S. Fasciculus VI.—*London*, 1849. Folio. Four Plates.

2. *Surgical Anatomy.* By JOSEPH MACLISE. Fasciculus IV.—*London*, 1849. Folio. Four Tlates.

3. *Pathology of the Human Eye.* By JOHN DALRYMPLE, F.R.C.S. Fasciculus III.—*London*, 1849. 4to. Four Plates.

AGAIN Mr. Churchill comes before us with his beautiful trio of illustrated works; and again we have the pleasure of noticing their progress in terms of almost unmingled commendation.—That of Mr. Wilson, as the eldest of the series, first claims our attention. The subject of the first plate is *Rupia syphilitica;* of the second, *Eczema simplex et rubrum;* of the third, *Impetigo syphilitica;* and of the fourth *Inflammatio folliculorum.* These are all drawn and coloured in Mr. Bagg's best style; and consequently present most faithful portraitures of the subjects they depict. The case of *Rupia* is a very characteristic one; but in the narration of it, Mr. Wilson leaves out one particular of some little importance, namely, its termination; the remedial means employed are noticed, without any indication of their success or inutility. The case of *Eczema* is also a very characteristic one, and plainly shows that the *E. simplex* and *E. rubrum* are different stages of the same disease. We quote Mr. Wilson's description of the subject of it, a young woman of eighteen years of age, as one which is unfortunately of very extensive applicability.

> "She was one of the unfortunate class of needlewomen—hard worked, badly paid, and poorly fed. Accustomed to rise early in the morning, in order to reach the workroom at the appointed hour, she often got wet feet and clothes on her way; the workroom was low and ill-ventilated, and contained a number of workers like herself; her work was laborious; she was obliged to remain late, and frequently, when she returned home, was so much exhausted, that she lay for many hours without sleep. Her home, a single small room, which she shared with another young woman of her own age, was unhealthy and devoid of comforts."

We doubt the propriety of the designation of the third Plate. The appearance of the disease presents nothing at all characteristic of a syphilitic eruption; so that the plate would stand equally well as a representation of the ordinary *Impetigo sparsa.* And the history of the case appears to us to justify the idea that the presence of syphilis only favoured the attack of impetigo, by producing a derangement of the general health.—The disease depicted in the last Plate is considered by Mr. Wilson as "Inflammation of the sebaceous follicles;" and its pathological characters are thus described, as observed on the face:

> "An erythema of the skin, with a scarcely appreciable swelling; the formation of an altered sebaceous secretion, which concretes on the surface into a thin horny layer; and the subsequent breaking-up of this layer into irregular scale-like fragments, which separate gradually from the inflamed skin, and lastly fall off to give place to another formation of the same kind."

On the covered parts of the body, the disease occurs in small patches about the size of a sixpence or a shilling, which become covered with a thin but continuous horny layer; this is often raised from its bed by the effusion of watery fluid beneath, which is considered by Mr. Wilson to be a secretion from the perspiratory glands, excited to increased activity by the morbid state of the skin; and after being thus elevated, the horny layer breaks into fragments and is rubbed off or exfoliates, and a new layer is formed in the same manner.—We are not aware that this disease has been described or delineated by preceding dermatologists.

The first three plates in Mr. Maclise's work delineate the principal blood-vessels of the thoracico-abdominal cavity, in their relations to the viscera, to the osseous skeleton, and to the external surface. These plates are well drawn; and the dissections from which they have been taken were arranged with an express view to the purpose of each; so that, although the three plates illustrate the anatomy of the same set of blood-vessels, neither of them could be spared without making the others show more than any one dissection can legitimately display. The fourth plate gives the surgical dissection of the superficial blood-vessels, &c., of the inguino-femoral region; and commences, we presume, a series illustrative of the anatomy of that very important part, which Mr. Maclise thinks it simpler to view as a "relationary whole," rather than to divide it as usual into two regions. We are very glad to be able to state that the Commentary no longer affords us matter for legitimate criticism, being written throughout in intelligible English, with only just philosophy enough to relieve the dryness of the anatomical details, and to enable the student to see a meaning in these details which he might have otherwise overlooked.

The present part of Mr. Dalrymple's work is entirely devoted to the subject of Purulent Ophthalmia and its disastrous results. The first two plates exhibit the disease in its active stages, both in the infant and the adult; the third shows the various structural changes in the cornea that are too frequently consequent upon it; and the fourth delineates the still more serious diseases arising out of it, in which the whole globe of the eye becomes involved and perishes Generally speaking, the plates are in every respect equal to those of former numbers; but we must notice that in the figure illustrating the purulent ophthalmia of infants, the colouring is hardly correct, either in the skin or in the eyelids; and we must make the same remark on the colour of one or two of the other figures. Some of the figures, however, are peculiarly life-like; such is that of a cornea in progress of cicatrization over a prolapsed iris (Plate x, Fig. 6), and that of hypopion (Plate xii, Fig. 1). The series of delineations is extremely complete, and illustrates all the most important stages and sequelæ of this malady; and these, with the treatment appropriate to each, are fully described in the accompanying text.

Art. IX.—*Elementos de Higiene Privada.* Por D. Pedro Felipe Monlau, m. d., Primer Ayudante del Cuerpo de Sanidad Militar, &c. —*Barcelona*, 1846. 8vo, pp. 550.

Elements of Private Hygiene. By Don P. F. Monlau, m. d., First Assistant of the Military Sanitary Corps, &c.—*Barcelona*, 1846.

We notice this work chiefly for the sake of showing, that even in Spain, which is commonly regarded as the most backward of all European countries in the march of improvement, the subjects of Hygiene and Sanitary Reform are beginning to excite attention. The author of the work before us, however, chiefly confines his attention to the precepts which refer especially to the *individual*, those which concern whole people, or large collections of individuals, falling within the province of "public hygiene;" the one is the hygiene of *man*, the other of *humanity*. Private or individual hygiene he divides into two parts, general and special. General hygiene considers the individual in the abstract, without relation to circumstances of age, sex, temperament, profession, &c. Special hygiene give the rules proper for each individual, taking into account the climate in which he lives, his age, sex, temperament, profession, and such topographical, organic, or acquired circumstances as lead to certain modifications in general precepts.

The first of these divisions, or general private hygiene, he divides into five sections: 1, *atmospherology*, treating under this head the agents which surround man, as the air and habitation; 2, *cosmetology*, treating on the dress and cleanliness of the body; 3, *bromatology*, in which food, condiments, and drinks are considered; 4, *gymnastics*, with the influences of exercise and repose upon the human body; 5, *perceptology*, or the study of the sensations and perceptions.

Special private hygiene he divides into three sections. In the first he treats upon the hygienic modifications induced by temporary and topographical circumstances, sidereal and planetary influences, climate, season, particular local position, &c. In the second are considered the individual circumstances dependent upon the organism, as age, sex, temperament, idiosyncrasy, &c.; and in the third, special directions which acquired individual circumstances call for, as habits, profession, and condition.

This plan is carried out very fully, but without great ability, and in a dry, hard manner, the reverse of pleasing. Self-evident truths and facts, which none dispute, are the subjects of long explanations; while important matters, which it might have been illustrated by accurate or statistical information, are passed over with comparatively little comment. The general tendency of the book, however, is good. It shows the advantages and necessity of pure air, cleanliness, sobriety in eating and drinking, exercise, and a guard over the passions. Still two lines of the old Salernian poem go far towards the matter of Dr. Monlau's 500 pages :

> Si tibi deficiant medici, medici tibi fiant
> Hæc tria : mens hilaris, requies moderata, diæta.

Art. X.—*The Druggist's General Receipt Book ; comprising a copious Veterinary Formulary and Table of Veterinary Materia Medica ; numerous Recipes in Patent and Proprietary Medicines, Druggists' Nostrums, &c. ; Factitious Mineral Waters, and Powders for preparing them ; Perfumery and Cosmetics ; Beverages, Dietetic Articles, and Condiments : Trade Chemicals, Miscellaneous Compounds used in the Arts, Domestic Economy, &c. ; Useful Tables and Memoranda.* By Henry Beasley.—*London,* 1850. 18mo, pp. 424.

The nature of this little book is sufficiently indicated by its title, which is almost minute enough to serve for a table of contents. It has been prepared by the author of the well-known Pocket Formulary in accordance with the suggestions of numerous correspondents ; and as far as we can judge from a general inspection of its contents, we should think it very likely to be useful, not merely to the class for whose benefit it is especially designed, but also to the medical practitioner. For the latter will learn from it the composition of a great variety of articles in common use among the public, with the nature of which it is very desirable that he should be acquainted ; whilst he will also meet with a number of formulæ that may be very serviceable to himself. Thus under the head of "Inks," we find a great variety of formulæ, having their several peculiarities and advantages, which will enable him to manufacture for his own use, at a much cheaper rate, most of the descriptions of ink (many of them protected by patent) which have obtained repute with the public. And although we cannot look with any favour on that part of the volume which contains formulæ for "Nostrums," such as, in our opinion, druggists ought not to be allowed to sell, yet it is much better that, so long as their sale is permitted, their composition should be known to those whose duty it too frequently is, to correct the results of the injudicious employment of them.

PART THIRD.

Periscope.

ANATOMY, PHYSIOLOGY, AND ORGANIC CHEMISTRY.

On the Structure of the Dental Tissues of Marsupial Animals, and more especially of the Enamel. By JOHN TOMES.

THE enamel of the teeth of most Marsupial animals presents this remarkable peculiarity, that a large number of the dentinal tubes are continued into the enamel, and constitute a considerable portion of it. This character is present in the teeth of all the species hitherto examined by Mr. Tomes (to the number of ten), excepting the Wombat; and it exists in very few other mammalian teeth, those (namely) of the British Shrews, the Hyrax, and the molar teeth of the Jerboa. A rudiment of it, however, is sometimes traceable in the teeth of man and of several other mammalia. In many marsupial teeth, also, the enamel is studded with small cells, often, but by no means always, arranged in contour lines. The enamel-fibres, too, are in many teeth so intimately united to each other, that their individuality is lost; and this occurs in most teeth in some parts, so that the dimensions of the fibres at such points cannot be taken. Mr. Tomes thinks that these characters may frequently afford valuable assistance in the discrimination of marsupial teeth; and he also draws the inference "that the euamel and dentine are so closely related that the one should be regarded as a modification of the other, rather than as a tissue of a wholly different nature."—*Philosophical Transactions*, 1849, Part II.

[Having ourselves had the opportunity of examining Mr. Tomes's very beautiful preparations, we can testify to the accuracy of his descriptions; and gladly take the opportunity of withdrawing the objection which we made to his statement of the occasional occurrence of this penetration in the human tooth, in our review of his 'Lectures on Dental Physiology and Surgery' (Vol. III, p. 179). We do not feel so well assured, however, of the soundness of his inference respecting the relation between the detine and the enamel; and we think that, with our present views concerning the formation of the canaliculi of bone, it is not difficult to account for the penetration of the dentinal tubuli into the enamel. For if the canaliculi of bone be radiating extensions of cells, which tend to diverge from their centre, and spread themselves through the soft matrix at the time it is undergoing calsification, we think that the same will hold good of the dentinal tubuli, which may be conceived to be elongated cells, tending to lengthen themselves still more, so long as they have a soft matrix to spread in. Their *nisus* of growth is ordinarily expended by the time they reach the surface of the dentine; but in these instances they spread onwards, into the enamel, and seem to insinuate themselves between the enamel-prisms, just as the rootlets of plants find their way into minute crevices. In some instances, the dentinal tubes seem to expand into cells, between the dentine and enamel, so as to take (as it were) a fresh point of departure before they begin to extend themselves into the enamel. We have met with a precisely analogous case in the structure of certain bivalve shells, whose exterior layer is composed of prismatic cellular substance, analogous to enamel; whilst the interior is composed of a tubular substance, the analogue of dentine; some of the tubuli of the latter passing onwards distinctly between the prisms of the former. There was assuredly here no similarity in the origin of the two layers.]

On the Action of Amygdaline and Emulsine. By M. Cl. Bernard.

There are certain vegetable substances, not commonly regarded as poisons, which become so by their reaction on one another. This is the case with the two substances, amygdaline and emulsine: the former obtainable from the bitter almond, and the latter from the sweet. So long as these substances are kept apart, they are innocuous; but when brought together, the emulsine transforms the amygdaline into anhydrous prussic acid, and hence produces immediately poisonous results. From the facility with which these substances are separately taken into the system, and from the obviousness of the results of their union, they offer peculiar advantages to the experimenter. Thus, if emulsine be introduced into the stomach of an animal, and amygdaline in its rectum, or *vice versâ*, no effect is produced, the substance introduced into the rectum not being absorbed; and the same is the case if these substances be separately introduced into parts of the areolar tissue remote from one another. But if both of them are introduced separately into the most distant parts of the circulating current, their union takes place with rapidity, and immediate death is the result, the body exhaling an odour of prussic acid. This result is also produced by the introduction of amygdaline into the digestive cavity, and of emulsine into the blood; but it does not take place when the emulsine is introduced into the digestive cavity, and the amygdaline into the blood; for the amygdaline, being of the nature of a ferment, is not absorbed,—it being a general rule (according to M. Cl. Bernard) that ferments are not absorbed by mucous membranes, however perfectly soluble.—*L'Union Médicale*, No. 112.

On a special Ranal Circulation. By M. Cl. Bernard.

The rapid appearance of soluble salts (such as prussiate of potash) in the urine, after they have been introduced into the stomach, is a fact well known to physiologists; and a difficulty has been felt in explaining it in accordance with what is known of the rate of the circulation. From his inquiries upon the subject, M. Bernard has been led to what he considers the solution of the problem.—He asserts, in the first place, that the salt introduced into the intestine is recognised in the renal *vein* sooner than in the renal *artery;* and guided by this fact, he has been led to a series of researches, from which he concludes that the liquid of drinks absorbed from the intestines, after traversing the portal circulation, and arriving in the vena cava, instead of ascending towards the heart, *descends* into the renal veins, which convey them, as arteries, to the renal capillaries; so that a considerable proportion of the liquid is eliminated, without ever passing into the general current of the circulation. The descent does not take place further than the origin of the iliac veins, being checked by valves just below that point. Although this is said to happen especially when a large quantity of liquid is taken into the stomach, it is also asserted to take place when a large quantity of succulent food is taken in at once, as is customary with the horse and the rabbit. If, however, but little liquid is taken in, or the animal is fasting, the circulation proceeds in its regular course. It is considered by the author, that whilst the main stream through the ascending cava is thus obstructed, the circulation will be sufficiently maintained by the collateral flow through the lumbar and the azygos veins. Further it is asserted by M. Bernard, that by no means all the blood which enters the vena portæ passes through the hepatic capillaries; for that there are passages of no small dimensions, which convey a portion of their blood *direct* into the vena cava; these he asserts, may be readily demonstrated in the horse. Now the blood thus arriving at the vena cava, from the mesenteric veins, either by the direct route, or by that through the liver, is *driven downwards* by the contractile force of the vena cava itself, which is provided in this part with additional means of doing so, by the presence of an unusual amount of muscular structure in its walls, extending as far as the auricles. A sort of pulsation may be observed in this part of the vein, which it is easy to distinguish from that of the auricles, especially in the rabbit. This peculiar circulation does not take place to the same degree in all animals; it is less in man than in the horse, and less in the dog than in the rabbit. In this way the author explains the difference between the action of certain poisons, as atrophine, on dogs and rabbits. In the latter, the poison is absorbed with liquid derived from the aliments which the animals are continually taking, whence it happens that it is sent first to the kidney, and eliminated by it; whilst in the former, the poison being absorbed in the state of fasting, the poison is at once carried into the general circulation. This special renal circulation, it is remarked in conclusion, ought not to be regarded as altogether extraordinary; since we find that in reptiles and fishes, the blood from the posterior part of the body passes through the kidneys.—*L'Union Médicale,* No. 116.

[We have taken notice of this paper, not on account of the value that we attach to it, but rather as a specimen of the hasty conclusions which our Gallic neighbours are too prone to draw from a small number of ill-observed facts. We should like to know how often M. Bernard has ascertained the presence of prussiate of potass in the renal vein before he could detect it in the artery; and what was the interval he has observed. The fact of the early appearance of absorbed substances in the urine, is not at all more difficult to explain than the rapid production of other remote effects of substances directly introduced into the current of the circulation, as in the experiments of Mr. Blake. There is certainly a difficulty in explaining these results; but as the hypothesis of a "special circulation" is entirely inadmissible in other cases, there is no reason for having recourse to it in this. That the upward current of blood in the vena cava is ever arrested in the manner described by M. Bernard, and carried on by the collateral circulation alone, is a proposition so extraordinary as to require the strongest possible evidence to justify it,—evidence of a kind which the author has most assuredly not given. Further, he seems entirely to have lost sight of the fact that if the renal veins be thus converted for the time into arteries, the renal arteries must be metamorphosed into veins; and this could only be effected (even admitting it to be in other respects possible) by the blood of the former deriving a stronger impulse from this extemporaneous heart, than the blood in the latter receives from the left ventricle. The analogy which is attempted to be drawn with the renal circulation in reptiles, is altogether fallacious; for the blood from the posterior parts of their bodies does not enter the vena cava at all, until it has passed through the kidneys, in which it is distributed by a portal circulation analogous to that of the liver.]

On the Pathological Changes that follow Section of the Sciatic Nerve.

By M. Brown-Sequard.

The frequent occurrence of certain pathological changes after section of the sciatic nerve, has been cited as a proof of the dependence of the nutritive operations upon nervous agency. This doctrine is called in question by the author, upon very sufficient grounds. He found that section of the nerve in frogs produced no pathological change whatever, save the atrophy consequent upon the paralysis, except when water found its way into the wound. He then divided the nerve in a number of rabbits and guinea-pigs, and placed some of the animals at liberty in a room with a paved floor, whilst he confined others in a box, whose bottom was thickly covered with bran and hay. In a fortnight, the former set exhibited an obvious disordered action in the paralysed limbs; the claws were entirely lost, the extremities of the feet were swollen, and the exposed tissues were red, engorged, and covered with fleshy granulations. At the end of a month, these alterations were more decided; and necrosis had supervened in the denuded bones. On the other hand, in the animals confined in the boxes, no such injuries had accrued. It is obvious, therefore, that these changes do not proceed directly from section of the nerve; but that they are consequent upon the friction and compression to which the paralysed members are subject against a hard soil, in consequence of the inability of the animal to feel or avoid it.

On the Influence of Electro-Magnetism on the Contractile Tissue of the Skin.

By M. Brown-Sequard.

It is generally believed by physiologists, that the contractile property of the skin can only be called into action by cold or by nervous power, and all attempt to excite it by ordinary or galvanic electricity, even when applied to the scrotum, have failed. M. Brown-Sequard, however, thought it worth while to try the effect of the electro-magnetic apparatus; and found that he could by its means produce contractions of the dartos, so as not merely to corrugate the scrotum, but even to excite in it a kind of rapid peristaltic movement. He found, also, that he could produce that peculiar corrugated state of the ordinary skin, with projection of the bulbs of the hair, which is known as "goose's skin;" and this especially on the back of the fore-arm. The phenomenon, strange to say, is most strongly marked in paralytic limbs.—*Gazette Médicale*, No. 58.

On the Regeneration of the Sciatic Nerve.

M. Brown-Sequard recently exhibited to the Biological Society of Paris a guinea-pig, in which the sciatic nerve had been completely divided twelve months previously. A month after the operation, indieations of a return of sensibility had begun to present themselves; within another month, the sensibility had decidedly augmented, but was still much inferior to that of the sound limb; the muscles had then begun again to act. Six months after the section, the sensibility appeared to have returned completely, and the motor power to have been almost entirely recovered; and at the end of about eleven months, no difference could be discovered in the motor power of the two limbs.—The animal having been subsequently killed, a careful examination was made of the part of the nerve where the section had been made; and the restoration of the original state was so complete, that no indication of the division could be discovered, either with the naked eye, or with the microscope. The usual swelling at the point of reunion had been distinguishable up to about the sixth month; but it had then disappeared.—*Gazette Médicale*, No. 45.

Case of Supernumerary Cervical Vertebra. By M. Dubreuil.

The presence of a supernumerary cervical vertebra is rare in the human subject, and every instance of it is therefore interesting. The subject of this case was a Swiss drum-major, remarkable for his herculean proportions. From a comparison of the cervical vertebræ with each other, and with those of the normal skeleton, M. Dubreuil comes to the conclusion that it was the *sixth* that was doubled.—*Gazette Médicale*, No. 45.

[Facts of this kind have a high scientific interest. It is well known that anatomists have been accustomed to regard the Ai, or three-toed sloth, as possessed of *nine* cervical vertebræ, until Mr. Thomas Bell endeavoured to prove that *seven* is the normal number even in this animal, the two lowest of these reputed cervical vertebræ being provided with rudimentary ribs. But this does not, in our apprehension, remove them from the category of cervical vertebræ; for these ribs are but unusul developments of the pleurapophyses of the vertebræ, and their presence does not become a valid character of distinction, unless they are united with the sternum. We have seen similar ribs in a human skeleton, in which the number of cervical vertebræ was normal, and in which, therefore, the ribs could not be included among those of the dorsal region. And the occasional occurrence of an eighth cervical vertebræ in man appears to us to indicate that we must return to the old mode of estimating the number in the sloth. The fact is moreover interesting, as showing something of that indeterminateness of the number of segments in the body, even in man, which prevails among certain of the lower animals; and as indicating also, that a character which at first sight appears so important as the number of vertebræ, cannot be admitted as a sufficient ground of specific distinction.]

On the Influence of the Electro-magnetic Current on the Duration of Cadaveric Rigidity. By M. Brown-Séquard.

Being desirous of ascertaining if the statements of Hunter, as to the non-occurrence of cadaveric rigidity in the bodies of men and animals killed by lightning, or the counter-assertions of Sommer, were the most correct, M. Brown-Séquard tried the effect of electro-magnetic currents of varying intensity upon the bodies of four rabbits of the same age and vigour, which had been killed by the removal of the heart; a similar animal, killed in the same manner, having been kept aside for comparison. The following were the results:

I. Not electrized.	Rigidity came on in	10	hours, and lasted	192 hours.
II. Feebly electrized	,,	7	,,	144 ,,
III. Somewhat more strongly electrized		2	,,	72 ,,
IV. Still more strongly electrized		1	,,	20 ,,
V. Submitted to a powerful current		7 min.	,,	25 min.

Thus it is seen that, the more powerful the current, the earlier does the rigidity appear, and the shorter its duration. And this difference is not in the simple direct proportion to the intensity of the current; for the current in No. V was only about twice as strong as that to which No. IV was subjected; and yet the rigidity came on within about one eighth of the time after death, and its duration was only one twenty-fifth. Hence it is justly argued by the author, that as the lightning-discharge is so much more potent than the strongest electro-magnetic current, the rigidity may supervene, and then disappear, with such rapidity as not to be observable; so that the statement of Hunter is essentially correct. He thinks that it exhausts the muscular contractibility, just as violent muscular contractions will do; and states that when animals die from the effect of poisons which produce convulsions, the rigidity appears earlier, and departs sooner, in proportion to the violence of the previous convulsive action. He found that, when the rigidity has once come on, its duration was not affected by passing an electro-magnetic current through a limb for several hours continuously.—*Gazette Médicale*, No, 40.

On the Movements of Rotation caused by Tearing the Facial Nerve.

By M. Brown-Séquard.

If the facial nerve of a rabbit or guinea-pig be exposed at its exit from the stylo-mastoid foramen, and be then drawn away from the cranium, so as to tear it asunder near its origin, the animal begins in about five minutes to turn itself round and round; the movement being from left to right when the nerve has been thus torn on the left side, and from right to left when it has been torn on the right side. This rotation is generally preceded by convulsive movements of the eyes, of the jaws, and of the head upon the trunk: and the body is then bent (as in pleurosthotonos) towards the injured side, by the contraction of all the longitudinal muscles of that side, the power of which is such as to resist considerable force applied to extend them. The movement at first takes place within a small circle; but the circle gradually enlarges more and more, until at last, after twenty or thirty minutes, the animal walks in a straight line. There is no paralysis of any muscles, save the facial. The effect is not produced, unless the nerve be torn close to its origin. In dogs, it almost invariably separates in its course through the aqueduct of Fallopius, and the experiment does not succeed. In rabbits it is usually successful; in guinea-pigs almost invariably.—When the nerve on the other side also is torn, even after a long interval, instead of the tendency to turn to one side, we see at first a *rolling* of the body on its longtitudinal axis, which takes place towards the side last operated on. After this has continued, however, for twenty minutes or more, the animal recovers its feet, and begins to *turn*, as after the first operation, but towards the other side, This movement soon ceases. The turning movement resembles that which results from injury of the medulla oblongata a little in front of the calamus, but takes place in the contrary direction; and the movements produced by the latter method commence at once, and do not cease of themselves like those produced by the tearing of the facial nerve, which obviously act by producing a temporary *irritation* only.—*Gazette Médicale*, No. 45.

Contributions to the Chemistry of the Urine. By Dr. H. Bence Jones, F.R.S., &c.

Of this very valuable paper, the following are the general conclusions:

I. *On the Variations of the Acidity of the Urine in the state of Health.* When a *mixed* diet was employed, the acidity was found to decrease soon after taking food, and to attain its lowest limit from three to five hours after breakfast and dinner; sooner, however, after breakfast, than after dinner. The acidity then gradually increased, and attained its highest limit just before food. If *no* food was taken, the acidity of the urine did not decrease, but remained nearly the same for twelve hours; falling immediately after food was taken. When *animal* food only was taken, the diminution of the acidity after food was more marked and more lasting than when a mixed diet was taken; and the acidity before food rose rather higher with a mixed diet, than it did with animal food. When *vegetable* food only was taken, the contrast with animal food was very marked. The urine did not decrease in acidity to the same degree; though it became neutral, it did not become highly alkaline. The acidity of the urine was rather higher with vegetable food, than it was with animal food; but the increase in the acidity was by no means so marked as the decrease of the alkalescence.

These variations in the acidity of the urine appear to depend on the state of the stomach. When much acid is in the stomach, the acidity of the urine is diminished. When the demand for acid in the stomach has ceased, the acidity of the urine increases. The diurnal variations in the acidity of the urine make it highly probable that corresponding variations occur in the alkalescence of the blood; such diurnal variations being produced by the quantity of acid poured into the stomach for the purpose of dissolving the food. When the food is irritating, or the stomach in an irritable state, much acid is poured out, and the effects on the blood and urine are more marked than they are when less acid is secreted.

The introduction of dilute sulphuric acid into the stomach, even in large doses, did not produce any very decided change in the acidity of the urine. Nine drachms of dilute acid in three days slightly lessened the decrease in the acidity of the urine *after* taking food, and slightly augmented the acidity *before* taking food. The whole quantity of acid passed in the twenty-four hours was sufficiently augmented, to show that the acid does pass off in the urine.

II. *On the simultaneous Variations of the Amount of Uric Adid, and the Acidity of the Urine, in a healthy state.* There is no relation between the acidity of the urine and the amount of uric acid in it. The urine that was most acid contained least uric acid. That which contained most uric acid was not highly acid. All food causes an increase in the amount of uric acid excreted; but there is no great difference between animal and vegetable food, as regards the amount of increase. No proof was obtained of the influence of exercise in increasing or diminishing the amount of uric acid. From the experiments on the total amount of urine excreted in twenty-fours hours, it appears as though the deficiency one day was followed by an excess the following day.

III. *On the Deposit of Urates in the Urine.* This deposit does not depend solely on the amount of urates present in the urine, relatively to that of the water, but is also influenced by temperature, a low temperature causing a precipitation of that which will remain in solution at a higher temperature; and also by the amount of other acids present in the urine. Alkaline urine will hold in solution a great excess of urate of ammonia, and very feebly acid urine will dissolve much more urate of ammonia than very highly acid urine. But highly acid urine will give no precipitate of urate of ammonia, if only a very small quantity of that substance be present in it. Strong light seems to have some influence. For the deposit sometimes takes place only on the side of the glass exposed to light. Brisk agitation, also, will sometimes hasten, or even cause, a deposit of urate of ammonia.

IV. *On the Variations of the Sulphates in the Urine in the healthy state : and on the influence af sulphuric acid sulphur, and the sulphates, on the amount of the sulphates in the urine.*—The amount of the precipitate of sulphate of baryta is considerably increased soon after food, whether animal or vegetable ; but no well-marked difference exists between the two kinds of food, as to their power of producing it The amount appears to be augmented by exercise ; but the increase is not so marked as it is after food. When sulphuric acid is taken in small quantity, even for some time, it exerts no manifest influence on the amount of sulphates in the urine ; but when taken in large quantity, the amount of sulphates is perceptibly increased. When dry sulphur was taken, the quantity of sulphates was perceptibly increased, but not to any great amount. The most marked increase was produced by taking sulphate of potash or of magnesia into the stomach ; this showed itself in from two to four hours, but was most considerable seven hours after the introduction of the salts.

V. *On the influence of caustic potash, tartaric acid, and tartrate of potash, on the acidity of the urine.* The use of *liquor potassæ* in large doses lessens the acidity of the urine. One ounce of liq. pot. in three days prevented the acidity of the urine from rising before food to the height it would otherwise have done ; but it by no means made the urine constantly alkaline, nor did it hinder the variations produced by the state of the stomach from being very evident. *Tartaric acid*, in large doses, increases the acidity of the urine ; causing it to rise before food considerably higher than usual, but not preventing the urine passed a few hours after food from being alkaline. *Tartrate of potash*, in large doses, produces the most marked effect on the alkalescence of the urine ; 120 grs. of pure dry tartrate of potass, dissolved in ℥ iv of distilled water, making the urine alkaline int hirty-five minutes. In two hours, the alkalescence had disappeared ; but after the next meal, the effect of the tartrate of potash was again apparent.—*Philosophical Transactions*, 1849, Part II.

On the Decomposition af the Bile of the Ox. By Dr. Buchner, jun.

M. de Gorup-Besanez has been for some time studying, in Dr. Buchner's laboratory, the series of alterations which the bile undergoes when removed from the economy. The mucus of the bile first becomes decomposed, and supplies a ferment which determines the decomposition of the fluid itself, the products of which fermentation bear a atrong analogy to those which result from the action of acids and alkalies on the bile. Thus, by the aetion of hydrochloric acid, the essential portion of the bile is decomposed into *choloidic acid*, which is precipitated, and into two neutral and crystallizable bodies, *glycocoll* and *taurine*, which remain dissolved with the chloride of soda, &c. Under the operation of alkalies, in the place of *choloidic acid*, there is formed the *cholic* of Demarçay (the *cholic* of Strecker) ; and if a strong alkali be employed, as caustic potass, in place of glycocoll and taurine, we have the products of their decomposition—ammonia, &c. So, too after the first period of the putrifactive fermentation of bile, which is terminated in from four to six weeks, beautiful crystals of taurine may be separated ; and a resinous precipitate produced by the action of acids, after separating the fatty matters from the residue, and redissolving it in water, is found to be of the same composition as *choloidic acid ;* while, if the bile has been fermented at a low temperature, crystals of *chololic acid* are produced—these two acids, indeed, only differing from each other by one equiv. of H. O. Another product due to the formation and decomposition of *glycocoll* is ammonia, the greatest portion of which escapes during evaporation. Thus the first phasis of the fermentation, which may be called the *bilic* fermentation, furnishes—

1. Ammonia, } Products containing all the azote and all the sulphur of the fer-
2. Taurine, } mented bile.
3. The resinoid choloidic, or chololic acid, combined with soda and ammonia, and precipitable by a stronger acid.

A further fermentation, which may be called the *tauric*, is effected at the expense of the taurine. Prisms of *sulphate of soda* are soon observed; and as this salt does not exist in the fresh bile, it can only result from the decomposition of the taurine, the only sulphurous body formed during the *bilic* fermentation. The quantity of taurine gradually diminishes *pari passu* with the increase of that of this salt, which eventually entirely displaces it. The same is observed in bile which has been purified by concentrated alcohol, in which the sulphates, owing to their insolubility, could not have existed. The *sulphate* is not produced directly from the decomposition of the taurine, but by the successive oxidation of hyposulphite, or sulphite which is so. In putrefied bile, too, we may always detect acetic acid, and other volatile acids of analogous compositon, especially valerianic.—*Journal de Pharmacie et de Chimie*, tom. xv, p. 377.

Experiments on the Use Salts. By M. Plouviez.

M. Plouviez recently presented a memoir to the Academy of Medicine, detailing the results of a series of experiments he has been engaged upon, with the view of determining the part which salt plays in alimentation. To ensure accuracy, he had to make choice of persons who led regular lives, continued their habitual mode of alimentation, took the salt at a meal it is not usually taken at, viz. in the morning (with milk), and were weighed before, after, and during the intervals of the experiments. He found more than 25 persons who fulfilled these conditions; but he does not detail the experiments made upon these, as the results only differed in some shades from those observed upon himself. Some of the persons experimented upon increased in weight from 500 to 2500 grammes in 30 days, and that only from the daily use of from six to 10 grammes of salt. Others increased from 5000 to 10,000 grammes in three or four months. Some acquired more strength and vigour, without any of the inconveniences of excess of nutrition, while others suffered from all the inconveniences of plethora, until the regimen was changed. The nutritive power of the salt was always most observable in feeble, lymphatic subjects. The experiments would at first seem to support the opinion of those who state that 1lb. of salt will produce 10lbs. of flesh; but if the regimen is continued from 5 to 10 months or more, the progressive increase of weight is no longer observed, a stationary condition ensuing, the blood being now as rich and nutrition as complete as possible. This fact explains the opposite conclusions arrived at by different observers. The appetite is sometimes found to increase during the first 8 or 10 days, then to resume its normal condition, and after the first or second month to diminish. The most general and certain effect is the increase of the strength; heat is more readily generated, and the exposure to cold better borne.

M. Plouviez's experiments upon himself were commenced in May 1842, when he weighed 75 kilogrammes. Beginning with a teaspoonful, he increased it to a table-spoonful (from 4 to 6 grammes), and continued this daily for 4 months. By the end of June his strength and weight (80 kilogrammes) had both augmented. By the end of July he found himself heavy and oppressed, and this feeling increasing, he was bled the 30th of August—his weight having by this time increased to 85 kilogrammes. During September he suspended the use of the salt, and finding, on resuming it again in October, that his head again became oppressed, he was bled a second time. He made no further experiments on himself during 1843-5, during which period his weight continued at 83 kilogrammes.

Resuming the experiment again November 1st, 1846, he took until the 2d of December 4 or 5 grammes daily, and from the 3d of December 10 grammes—his weight increasing to 85 kilogrammes. The former symptoms of determination to the head coming on, he was bled on the 28th, and the blood analysed by M. Poggiale. He then resumed his ordinary regimen for 66 days, lost 2 kilogrammes in weight, and feeling quite well, was again bled, in order that his blood might be again analysed. The two analyses gave the following results:

	First Analysis.	Second Analysis.
Water	767·60	779·92
Globules	143·00	130·08
Fibrine	2·25	2·10
Albumen	74·00	77·44
Fatty matters	1·31	1·13
Salts and extractive	11·34	9·33

In the first analysis 6·10 of chloride of soda, and 1·50 oxide of iron were found, and in the second 4·40 chloride of soda and 1·26 oxide of iron.

On the 4th of June, 1847, he resumed the use of the salt, and by the 22d of August had regained his weight of 85 kilogrammes, and was bled in consequence of giddiness. He omitted it, with loss of weight, until the 20th of September, when he resumed it, and reacquired the weight by the 26th of October. He now left off the salt until January 1848, and then continued it, with intervals of suspension, until February 1849, the same results being observed. From March to July he suppressed the use of all salt at his meals, and found as the result a loss of weight and a feeling of debility produced.

M. Plouviez, in an accompanying note, states that he regards salt—1. As a condiment until it enters the stomach. 2. As reacting through its bases upon this viscus, and the intestinal canal. 3. As increasing the quantity of chyle by its action on the elements of the chyme. 4. As an excitant of the intestinal absorbents. 5. As a useful modifier of the blood, by diminishing the proportion of its water. 6. As a principal agent in the solution of albumen and fibrine. 7. As one of the agents tending to produce or increase the globules. 8. As a powerful coadjutor in the act of hæmatosis, without the aid of which the blood does not become reddened in its contact with oxygen. 9. As a valuable auxiliary in the intimate acts of assimilation and deassimilation.

M. Robinet, in reporting upon the Memoir, reserves his opinion of its scientific value, but does not hesitate to compliment the author for his devotion in having thus undergone a saline regime during 735 days, spread over 25 months of 3 different years, leading on several occasions to so much indisposition as to call for bloodletting.—*Bulletin de l'Académie de Méd.*, tom. xiv, pp. 1028 and 1077-80.

Manifestation of Electricity in a Horse.

DR. LANDERER, a German physician at Athens, saw a horse in the king's stables in that city, which excited much attention. It was a beautiful Arab steed, having a very delicate coat. On stroking this with the dry hand, in the dark, such an abundance of electrical sparks were given out, as to lead to the appearance of the animal having a ball of phosphorus passed over it. They vanished in an instant. They were especially developed by stroking along the backbone from the tail towards the neck; but only slightly so on stroking the head or legs. The phenomenon was much more observable in dry than in moist weather, and could not be produced during the prevalence of actual rain.—*Buchner's Repert. für die Pharmacie*, Band iii, p. 75.

On an Infusory Animalcule allied to the Genus Notommata of Ehrenberg.

By JOHN DALRYMPLE, F.R.C.S.

THIS paper presents many points of great physiological interest; of which, however, we can only notice the chief. The animal which forms the subject of it is one of the class Rotifera, and of the family *Hydatineæ*, and is nearly allied in many points of its organization to the *Notommata* of Ehrenberg; but it differs from this, and from all other Rotifera, in the want of an intestine and anal orifice. The mouth, pharynx, gastric teeth, and stomach, are constructed upon the general plan of the corresponding parts in other Rotifera, and there is a distinct rudiment of a biliary apparatus; but the indigestible matters are rejected through the mouth, thus presenting a return to a comparatively low type of organization. The sexes are distinct. The male is about three fifths the size of the female; *but possesses no mandibles, pharynx. œsophagus, hepatic glands, nor stomach;* having, in fact, no other organs fully developed, than those of generation. The act of copulation has been several times witnessed; so that there can be no mistake as to the character of this extraordinary being. A single copulation will fertilize the ova matured some time afterwards; but no female can develope young without copulation. Two kinds of ova are produced; those of the ordinary kind, whose embryo is brought to maturity within the body of the parent, the egg being retained in a special receptacle (erroneously termed the ovisac); and those provided with a firm envelope, which are deposited by the parent, and are probably intended to resist the action of the winter's cold, and thus to regenerate the race in the spring, after all the parents have been killed off, as happens in many other cases.—*Philosophical Transactions*, 1849, Part II.

PATHOLOGY AND PRACTICE OF MEDICINE.

Chemical Researches on the Soft Occiput of Children. By J. SCHLOSSBERGER, of Tubingen.

PROFESSOR SCHLOSSBERGER, fully agreeing with Rokitansky, that, in the investigation of diseases of the bones, the chemist and physician should go hand in hand, —the advantage of which procedure has been well exhibited in the work of Von Bibra and Geist upon the caries induced by phosphorus,—has to this end availed himself of the clinical observations and preparations of Dr. Elsässer for the full elucidation of the subject he has undertaken to treat.

He prefaces his paper with some observations upon the published analyses of the bones of the child's skull in their normal state. These are few in number, and only for the most part indicate the proportion of organic to inorganic materials, without entering into details. From these and his own analyses, it results that in bones, which have been completely dried at a temperature of 120°, and are in a normal condition, the proportion of inorganic materials has been found to range from 61 to 68 per cent. The earthy phosphates have been found varying from 53 to 56 per cent., and only sank below 50 in a bone that was abnormally vascular. In the adult skull, Von Bibra states the proportion does not sink below 56.

As an example of an intermediate state between normal bone and the soft occiput, Professor Schlossberger communicates an account of an examination he made of an occiput he received from Dr. Hauff, which, though belonging to a child fourteen weeks old, admitted of being pressed inwards during life, and cut like a piece of card after death. It furnished 55·252 inorganic to 44·757 organic parts, being exactly the proportions which Rees had observed in a normal temporal bone of a child, but which Berzelius and Von Bibra suspected had not been sufficiently dried. In this same occiput the earthy phosphates constituted 50 per cent.

The analyses of five soft occiputs, taken from Elsässer's preparations, are given. They were well marked examples, in which great flexibility and yielding were observed, and in some spots the thinning had become so extreme that only the periosteum remained. While some of the preparations exhibited only thinness and softening, in others there were also observed thickened portions of the occiput or adjoining bones, nearly amounting to osteoporosis, with expansion of bone, as indicated by Rokitansky in the extremities of rickety bones. These swollen portions were especially observed on the frontal and parietal bones, and they continued after maceration dark coloured and excessively porous, the periosteum being detached only with the greatest difficulty. On the inner surface of these spongy portions, osteophytes were developed. The cartilaginous basis of the bones was found to have undergone no chemical alteration. As a general result of the whole examinations, the inorganic material was found in the thinned parts of the bone to have sunk to 53 or 51 per cent., and in the thickened spongy parts to 28 per cent., or in slight cases to 40 or 43 per cent. As the affection becomes cured, so does the proportion augment, but never to the extent of exceeding the normal one. The proportion of carbonate of lime to that of earthy phosphates is very fluctuating; and that of the fatty matters is not materially changed.

In considering the nature of the disease, then, we find it differs from *osteomalacia*, since in that are found a diminished volume of the bones, a precolation of them with fat, and chemical alteration in their cartilaginous basis. Moreover, this is not a disease of childhood, and only in a lesser degree attacks the skull. Between *osteoporosis* and *rachitismus* there is chiefly this difference, that while the one sometimes shows itself as a mere local disease, due to local causes, the other is always due to a general cause, a so-called dyscrasis. In both affections we find porosity, in both a diminished amount of mineral ingredients, with or without the accompanying change in the cartilaginous basis. Both Von Bibra and the author have found this last healthy in rickety bones, so that its healthy state in the soft occiput affords no ground for denying this change to be of a rickety nature. The great contradictions which prevail among the different statements that have been made in regard to Rachitismus, are due to the complete want of a chemical history of the development of a disease, the anatomical history of the various stages of which has been so well traced out by Guerin.

In respect to the etiology of the affection, Marchand's views and Elsässer's observations are at issue; for while the former prohibits the mother's milk as food, lest the lactic acid might induce a still faster absorption of bone-earth, the latter has especially observed the soft occiput produced in children deprived of a due supply of milk. Chossat observed, in his remarkable experiments on inanition, that when the salts of lime were removed from the food, diarrhœa was very frequently produced (according to Elsässer, this is of frequent occurrence in these children), and that the proportion of salts in the bones diminishing, these became thin and brittle. In his treatise on the soft occiput, Elsässer enters at great length, into the diagnosis of this disease, in its medical and anatomical aspects. In its chemical aspect the distinction is easy; for in the thinning of the bones of the skull from pressure, from hydrodcephalus, tumours, &c., they seldom become softened, or manifest such poverty of bone-salts, in connexion with a healthy condition of their cartilaginous basis.—*Annalen der Chemie*, Band lxx, pp. 16-32.

On the Chemistry of Dysentery. By Dr. Oesterlen.

Dr. Oesterlen, as the director of the Medical Clinique at Dorpat, has had a vast number of cases of dysentery brought under his notice; but his object in the present paper is merely to report the results of the examination of the matters discharged from the bowels. Even a superficial view of the disease serves to show of what importance these discharges are. The enormous quantities that are passed, and the rapid collapse and emaciation that ensue, are unequalled save in cholera itself. Still there exists no exact account of these quantities, or of the chemical composition of these discharges; and the present paper, as a first step towards supplying this deficiency, details the examinations made in four cases, by Professor Schmidt and himself. A graduated vessel was adapted to the night-stool, so that the entire amount of excrementitious matter would be accurately measured. Sufficient clinical particulars are given to show that the cases were well-marked examples of the disease.

The first general observation made is upon the enormous amount of the loss of albumen, salts, water, and epitheliel scales that take place. Thus we find that the quantity of discharges collected, in one patient, amounted to 2100 cubic centimetres (or grammes) on the 10th day, to 3500 on the 12th, 800 on the 14th, 3500 on the 15th, and 2000 on the 17th; the amount of albumen and epithelium discharged being 79·4 grammes on the 10th day, 80·9 on the 12th, 18·2 on the 14th, and 52·8 on the 15th. In another patient, the total discharges amounted to 3800 cubic centimetres on the 1st day, to 2400 on the 8th day, and to 800 on the 14th. Deducting from 20 to 25 per cent. for the urine which sometimes became commingled with the stools, the author calculates that an adult, in a case of medium severity, will pass from 1500 to 2000 cubic centimetres per diem during the first fourteen days, and from 800 to 1000 for another week; so that, for the entire duration of an attack that has lasted three weeks, he passes at least 30,000 cubic centimetres, or 30 kilogrammes. The albumen exists in different proportions, as 15, 23, 24, or 39 per 1000, its daily loss by weight varying from 20 to 80 grammes.

Not only is there this immense loss of *albumen*, but its per centage and absolute quantity are found to be far more considerable in the severer stages of the disease, than in the later and generally milder ones; so that this general proposition may be laid down—that the more severe is the disease, the greater will be the amount of the stools and their richness in albumen; while the less they are in quantity, and the poorer in albumen and larger in their proportion of water, the milder is the disease, or the more has it advanced towards its later stages. So, too, in any intercurrent aggravation of the disease, we find this indicated in the increased quantity, but especially in the increased albuminosity of the stools. In an attack of medium intensity, we may estimate that the patient will lose from 50 to 60 grammes of albumen during the first fourteen days, and about 20 grammes during the next eight days—the total loss amounting to from 900 to 1000 grammes. This large loss of albumen becomes the more striking, when we compare it with that which is observed in other diseases attended with purging, or after the use of laxatives. Thus, in the stools produced by calomel and jalap from a patient suffering from chronic disease of the brain, the proportion of albumen was only 3 per 1000; and in a case of typhus, the stools furnished but 3·9 per 1000, i. e. five times less than a case of dysentery, even when on its decline. Estimating the entire weight of the albuminous portions of the blood at 800 or 900 grammes (Valentin), from 1-20th to 1-40th of these are lost daily.

Estimating the *water* of the blood at from 9 to 10 kilogrammes, the abstracting daily from 1500 to 2000 grammes of this, sweeps away with it a portion of the newly-formed albumen, and gives rise to modifications and diminution of various exudatory and secretory processes, and especially influences the quantity of the *urine*. This is found to be remarkably diminished; and the same cause explains the dry and inactive state of the skin, and any diminution of the quantity of vapour and carbonic acid that may be exhaled from the lungs. In some cases, the whole quantity of urine passed in the twenty-four hours has not exceeded 400 or 500 grammes. Contemporaneously with the improvement of the patient and the diminution of the stools, the quantity of the urine increases.

The *bile* has been supposed to play an important part in this disease. In 46 autopsies it was found in the most varied quantities, just as is the case in other diseases. Any defective secretion is, doubtless, in part dependent upon the little food these patients take.

Dysentery belongs to the so-called malarious class of diseases, and at Dorpat is endemic just as in the ague; and in relation to the antagonism said to exist between this last disease and phthisis, it is interesting to observe that, in 46 autopsies of dysenteric cases, no traces of tubercle could be found, notwithstanding that phthisis is a disease of frequent occurrence in the vicinity.

From what has gone before, we may adduce the therapeutical rule of employing only with the greatest caution the means (e. g mercury, bloodletting) calculated to induce or augment loss of material; and to use every means not merely to cope with the local disease, but also with the important anomalous *crasis* induced, and prevent, by the addition of new material, exhaustion of the mass of the blood.—*Henle and Pfeufer Zeitschrift*, Band vii, 253-81.

Caries of the Forehead, Softening of the Brain, and Total Suppuration of the Arachnoid, without any distinctive symptoms. By Dr. Heinrich, of Mainz.

Dr. Heinrich regards the following case as a very important one in its medico legal aspect,

N. N., æt. 22, a clerk, of weakly habit, yet of good health usually, had been for a twelvemonth liable to headaches, which would last for some hours and then leave him. They did not affect any one part of the head in particular, and were accompanied by a sensation of pulsation. The attacks came on without any obvious cause, and after some rest subsided. As he was unwilling to leave his occupation, he had not applied for medical aid. One day he was at a tavern with some friends (he was of sober habits however), when one of them accidentally struck him a blow with a pipe, just above the root of the nose; but so slight was this that it did not even produce any mark. Nevertheless, he was seized with a severe attack of headache, affecting especially the top of the head; and so distressing was it that, after a sleepless night, he called in a practitioner. Purgatives, and afterwards antiphlogistics, though there was no fever or signs of inflammation present, were employed in vain; and after twelve days spent in efforts to obtain relief, he was brought to the hospital. He complained of excessive and constant suffering, but was entirely conscious, nor was there general fever or local heat of the head. The pain was accompanied by a sensation of throbbing of the entire head, which was sometimes exchanged for a painful sense of pressure, as though the head were secured on every side in a vice. His understanding and memory were undisturbed, even amidst his extremest sufferings, his great complaint being sleeplessness. He was pale and emaciated. His eyes retained their brilliancy, save during the existence of the sense of pressure, when they became clouded. His pulse was slow (50 to 55), weak, and soft, the tongue clean, stools regular, absence of all thirst and fever. Several days thus passed away, the pain continuing without intermission, and the debility augmenting, but the intellectual powers continuing undisturbed until the twenty-seventh day, when fever, delirium, and convulsions appeared, and he died the next day.

At the *post-mortem* (thirty-six hours after death) a slightly elevated, yielding spot was observed on the forehead, which had not been remarked during even the last examination made of his head the day before he died. On removing the scalp, a fetid, ichorous fluid flowed from this part, and the periosteum of the frontal and adjoining parietal bones was found in part loosened, in part destroyed by suppuration, while the upper half of the frontal bone was carious and penetrated. The bones of the skull were surprisingly thin, the thickest not exceeding two lines, and the thinnest half a line. Opposite the carious bone the dura mater was observed suppurating and gangrenous, and discoloured in other parts. Both hemispheres were flattened, as if sunk in. The arachnoid was so covered with pus, that no traces of its proper characters could be discerned. The substance of the brain was of a pappy, semifluid consistency, and exhibited no increase of vascularity. All traces of the arachnoid were gone at the base of the brain, there being nothing but a fetid ichor; and to such an extent had softening of the brain gone, that it could not be taken out without rupturing it.

With such an extensive disorganization of the brain and its membranes, the entire absence of all disturbance of its functions until the day before death is hardly comprehensible, and such extensive changes imply a much longer period in their production than the history of the case furnishes; for during the twenty-eight days no signs of acute inflammatory action or disease of the skull could be detected by repeated careful examination. They were doubtless due to chronic inflammation operating during the twelve months he had complained of severe headaches. Yet had he considerable intervals of entire freedom from these, and at the time he received the blow he was engaged in cheerful conversation, and complained of nothing. The post-mortem shows that the blow received had nothing to do with the production of the caries. Had it been inflicted somewhat higher, and that during a scuffle, the patient apparently quite well at the time, and immediately afterwards becoming so ill, suspicion of its agency would have been reasonably excited, until the autopsy revealed of how much longer standing the mischief really was.—*Henke's Zeitschrift*, Band lvii, pp. 379-404.

Revaccination in the Prussian Army during 1848.

28,859 individuals were revaccinated, among whom the cicatrices of prior vaccinations were distinct in 22,386, indistinct in 4211, invisible in 2262. The results were—

Regular vesicles in . .	16,882
Irregular vesicles in . .	4404
Ineffectual vaccination in .	7753

On repetition of the vaccination upon these last, it succeeded in 1579. Thus in every 100 revaccinations, a successful result followed in 64; being the same proportion as in 1847. Among those successfully revaccinated in the present and former years, there appeared 6 cases of varicella, 1 of varioloid, and no example of variola. Throughout the entire army in 1848, 22 cases occurred, viz. 13 varicella, 8 varioloid, 1 variola; of these 6 were recruits not yet revaccinated, 9 had been revaccinated without success, and 7, as stated above, had been successfully revaccinated. One death occurred in the person of a soldier who had been revaccinated three times without effect.—*Medicinische Zeitung*, 22.

On Exophthalmos after Scarlatina. By M. Deval.

Tumours, either chronic, or, what is far rarer, acute, when developed in the orbit, whatever may be their nature, have the common effect of protruding the eye. The consequences of this are very various. Thus, we may have different degrees of inflammation, pannus, fungosities, &c., developed, if the eye does not remain covered by the palpebræ. If pushed out obliquely, diplopia may result, while, in other cases, compression of the ophthalmic ganglion will induce mydriasis. When amaurosis occurs, it generally arises from the stretching of the optic nerve, and when such extension ceases to exist, vision may be restored with all its clearness,—a fact that led Delpech to observe, that, delicate as the structure of a nerve may seem, and especially that of the optic nerve, its tissue may undergo great elongation without the production of any definite lesion. Orbitoceles often present some of the greatest difficulties in ophthalmic pathology, both on account of the variety of their form and the difficulty of their exploration. Whether the tumours are encysted, fatty, fibrous, &c., they do not reveal themselves, unless originating near the anterior opening of the orbit, or, originating deeper, become in their course subpalpebral. If the displacement of the eye is the only indication of their existence, their nature can only be guessed at by the aid of concomitant circumstances. It is especially in syphilitic patients that the exophthalmos depends upon osseous growths; but M. Deval has several times observed in scrofulous children a more or less limited caries accompanying purulent orbitocele.

The extrusion of the eyeball may also depend upon a lesion primarily originating in a neighbouring cavity, as in the case of fungus of the dura mater related by Louis, in that of a nasal polypus, or an aneurism by anastomosis of the maxillary sinus. In other cases, it may be due to effusion of blood after contusion, or to acute phlegmon of the orbital cellular tissue. The case to be related confirms the observation of Wenzel, that collections of fluid amidst the adipose substance situated at the base of the orbit and between the muscles of the globe and its accessory parts, may, just as an abscess at the bottom of the orbit, protrude the eye. Sichel relates some interesting cases of exophthalmos, which he believes to be due, sometimes to hyperæmia of the cellulo-adipose tissue of the orbit, at others to hypertrophy of this, and sometimes to serous suffusion—or a combination of these conditions. The eye may then be protruded without deviating laterally. To this class of cases the following belongs; and M. Deval is aware of no other recorded as resulting from scarlatina.

A child, æt. 2½, was brought to him, having its left eye in a normal condition, but the right one projecting so far, as to prevent the eyelids from covering it. There was no great injection of the conjunctiva. Although vision was preserved, tho child had an astonished look, probably owing to diplopia, resulting from a slight deviation of the eye towards the temple. There was no other sign of ill-health present. Two or three weeks before, the child had had mild scarlatina. During desquamation the face became œdematous, and the projection of the eye had now continued for eight days. Under the use of baths, alterative medicine acting on the skin, and counter-irritants to the temples and behind the ear, a diminution of the exophthalmos was effected in a week, and three weeks after this an occasional slight strabismus was the only remaining abnormal appearance.—*Annales d'Oculistique*, tom. xxi, p. 139.

SURGERY.

Needle found in the Heart.

DR. NEILL, while dissecting the body of a negro, who had suffered, though not urgently, some time before death, from palpitation, slight dyspnœa, and severe cough, and who had never complained of having received any injury nor manifested any tendency to suicide, found a foreign body in the heart, which it was ascertained could not have fallen in during the dissection. It proved to be a broken worsted-needle, two inches long, imbedded in the external wall of the left ventricle, with its point directed to the apex of the heart. It was much oxidized, and could not be moved from its situation until the cyst containing it was split up. The broken end was contained in one of the columnæ carneæ.

Cases are on record in which needles have penetrated into the heart from without. Dr. Leaming relates one of a seamstress, who thrust a needle through her chest by falling against a table, and who died, after suffering from pleurisy, pericarditis, and pneumonia for nine months. The body of the needle was found imbedded partly in the wall of the right ventricle, and partly in the septum, whilst the point projected a quarter of an inch into the left ventricle. Another is contained in the 'Archives Générales,' 1842, in which a soldier ran two needles into his heart, and died in nineteen days. The needles had passed through the heart, and lodged in the lower part of the left lung, therein inducing an abscess. A third case is related by Dr. Graves, in which the needle, after having been run in for the purposes of suicide, was cut down upon and removed. The patient, however, died of pleurisy on the eighth day, and on opening the left ventricle where the needle had entered, a small membranous sac, about the size of a pea, and containing pus, was found.—*New York Med. Examiner*, N. S., vol. v, No. 2, p. 94.

On the Treatment of Nævus. By DRS. KEBER and LENOIR,

DR. KEBER reports upon the great advantage he has found in employing the *strong nitric acid*. The stronger the acid, the less pain does it excite, and the quicker is the recovery. He takes up a drop of the fuming acid with a glass rod, touches the nævus with it, and allows it to dry on. If a small drop be applied at the earliest stage of the nævus, when it does not exceed a pin's head in size, then not even a scar is left; but when the nævus has arrived at a considerable age, the skin around is inflamed by the acid, suppuration is set up, and a cicatrix remains.

M. Lenoir, of the Hôpital Necker, has for some time past treated nævi with great success by means of the *actual cautery*,—a means especially applicable when the tumour is so placed as to be attacked with difficulty by the scalpel or ligature. He employs a flat platinum needle, heated to whiteness, and along which a copper globe of an inch in diameter slides at will, for the purpose of retaining a supply of caloric in the blade. He was formerly in the habit of piercing the tumour several times with the needle; but finding this in some cases induce an excess of inflammation, he has since only traversed it once, the cure being thus more slowly accomplished, but at less risk. If at a future period the diminution is not considered satisfactory, recourse may be again had to the needle. After the operation, cold-water dressing or other simple means are employed.*Medicinische Zeitung*, —No. 17, and *Gazette des Hôpitaux*, No. 48.

On Brachial Ecchymosis in Fracture of the Cervix Humeri. By M. MALGAIGNE.

IN fracture of the cervix humeri, brachial ecchymosis constitutes a most important symptom, although left unnoticed by authors. It appears sometimes on the day of the fracture, and at others only several days after; but the surgeon, when it is not present at first, having been able to assure himself of the existence of the fracture, is enabled to announce as almost certain that the ecchymosis will occur. It may occupy any of the brachial regions, or several of them at a time, being sometimes limited to the shoulder, at others occupying the whole arm, and extending even to the walls of the chest. It is rare indeed to find it quite absent, and I have only seen one case in which it could be scarcely said to have existed just below the clavicle. Setting apart the few cases in which it is hardly visible, I have generally found it persisting beyond the time requisite for the consolidation of the fracture.

This symptom, then, is a very important one in the diagnosis of fracture of the cervix, in which there is sometimes little or no displacement of parts, no abnormal mobility, and in which crepitation is only to be heard with difficulty, or not at all. The best means of distinguishing crepitation in these cases, is to take the elbow in one hand, and apply the other either to the shoulder or in the axilla, so as to bring the fingers as near the head of the bone as possible, and then to rotate the arm. It would be to attach too much importance to the ecchymosis, to declare it a pathognomonic sign of the fracture; but nevertheless I have never seen it occur, save in the case of this accident, or in that of direct contusion of the ecchymosed parts.—*Gazette des Hôpitaux*, No. 115.

On the Removal of the Larynx of a Goose from that of a Child by Tracheotomy. By DR. BUROW.

THE children in Dr. Burow's vicinity are very fond of blowing through the larynx of a recently-killed goose, in order to produce some imitation of the sound emitted by this animal. When given to them for that purpose, it has usually ten or twelve rings of the trachea connected with it. A boy, æt. 12, while so engaged (Nov. 1, 1848), was seized with a cough, and swallowed the instrument; a sense of suffocation immediately ensued, which was, after a while, replaced by great dyspnœa. Dr. Burow found him labouring under this eighteen hours after, his face swollen, of a bluish-red colour, and covered with perspiration. At every inspiration, the muscles of the neck contracted spasmodically, and a clear, whistling sound was heard; and at each expiration, a hoarse sound, not very unlike that of a goose, was emitted. As, on passing the finger down to the *rima glottidis*, it was found closed, Dr. Burow felt convinced (improbable as, from the relative size of the two bodies, it seemed) that the larynx of the goose had passed through it. Tracheotomy was at once performed; but, owing to the homogeneousness of structure of the foreign body and of the parts it was in contact with, the greatest difficult existed in distinguishing it by the forceps. Moreover, so sensitive was the mucous membrane, that the instant an instrument touched it, violent efforts at vomiting were produced, and the entire larynx was drawn up behind the root of the tongue. At last, after repeated attempts, Dr. Burow having fixed the larynx in the neck by his forefinger, so that it could no longer be drawn up on these occasions, he contrived to remove the entire larynx of the animal. The child was quite well by the ninth day. Dr. Burow says it was a matter of great congratulation for him that many pupils were present during this operation, and thus able to confirm the correctness of a statement so incredible as to stand much in need of such confirmation.—*Casper's Wochenschrift*, No. 39.

Wound of the Heart—Death only after Twelve Days. By Dr. Bowen.

Dr. Bowen presented a specimen of wound of the heart to the New York Pathological Society. It was taken from a man, æt. 21, who had been admitted into the hospital on December 13th, 1848, having two days before been stabbed in the cardiac region. Febrile excitement and pleurisy ensuing, he was bled with some advantage; but fell into a state of syncope on the 22d, and died on the 23d. The left pleural cavity was found filled with blood, compressing the lung to a third of its size. The periosteum was also filled, and the heart pushed over to the right side. The pericardium was found to be perforated within the mediastinal space, two inches below its reflection from the vessels, both its internal and external surfaces being also inflamed. The heart was perforated half an inch on the right of the septum; the cutting instrument entered the right ventricle about a line below the anterior semilunar valve of the pulmonary artery, and, passing quite through the ventricle, pierced the septum ventriculorum, just at the base of the posterior valve, and came out into the left ventricle at the orifice of the semilunar aortic valves, one of which was grazed. The track was lined with coagulable lymph, but a probe could be introduced without displacing this.—*New York Journ. of Med.*, N. S., vol. iii, p. 201.

On Syphilitic Inoculation as a Prophylaxis. By M. Diday.

The following are the assumptions upon which M. Diday believes himself justified in instituting this new practice:

"1. A man has constitutional syphilis but once in his life. 2. By artificially developing it in an individual, we preserve him from it in future. 3. Cases of congenital syphilis prove that the blood may become the vehicle of the constitutional poisoning; but in the tertiary period, the disease is no longer propagated with the specific characters of lues. 4. Thus, by inoculating a healthy person with the blood of a patient suffering from tertiary syphilis, we may induce in his constitution a diathesis, of an unknown nature, it is true, but one which will not have the inconvenience of producing constitutional syphilitic symptoms. 5. It is allowable to believe, that this diathesis would produce in him the same immunity against the manifestation of constitutional syphilis, as a former attack of the disease would do. 6. The chances of the harmlessness and those of the prophylactic efficacy of this procedure are sufficiently great to allow of our rationally experimenting on those who, having or having recently had a chancre, are thus exposed to the ulterior occurrence of constitutional syphilis."

Acting upon these premises, M. Diday inoculated sixteen persons with the blood of a patient suffering from nodes; and as, at the end of a mean period of eight months and twenty-one days, these persons (who were labouring under chancres of recent date when inoculated, and had never had constitutional syphilis), with the exception of one, continued free from constitutional syphilis, he considers that this result affirms his propositions, and justifies their general application. The scientific baselessness of such a conclusion has been exhibited with admirable critical acumen by M. Vidal, in two letters (L'Union Médicale, Nos. 135 and 141), which he aptly enough addresses to a medical student; for to any matured understanding the statements must carry their own refutation. It is abuse of experimental investigation like this, that brings discredit upon a mode of inquiry which has produced very fertile results; and we transcribe with pleasure the following passages condemnatory of this and analogous abuses from the 'Gazette des Hôpitaux:'

"More than once have we had occasion to regret and protest against the two experimental tendencies which certain hospital medical officers [M. Diday is surgeon to the Venereal Hospital at Lyons] are led away with. It is distressing to have to avow, that, in the hands of such persons, the medical wards have too much the appearance of a laboratory, and the human body of a box of reagents. A typhoid or smallpox patient is bled, not because this is believed to be useful in his case, but merely for the purpose of weighing the fibrine or counting the globules. Sometimes they do not hesitate to have a patient bled, even when well convinced that this must be injurious, as in the case of chlorosis, scorbutus, or the cancerous diathesis. These tendencies are the more deplorable, as they can be justified neither by the love of science nor by the service they may render therapeutics; and still more are they to be deplored, as affording some foundation to the prejudices entertained by the necessitous classes against hospitals, and as depreciating the medical body in public esteem.

"We cannot conceive that the experiments which have given rise to these remarks would ever have been proposed to patients in private practice, who, paying for the attentions they receive, would be in consequence at perfect liberty to accept or decline any proposition that was made to them; but still less can we conceive how they could have been proposed to patients over whom some degree of authority was exercised, and who might hesitate between the repugnance inspired by the procedure and the fear of being dismissed, or at least not so well attended to. Dare we add that such fear has not always been without some foundation?"—*Gazette Médicale*, 1849, Nos. 39 and 40; *Gazette des Hôpitaux*, No. 108.

[We feel pleasure in believing that these strictures do not apply to the officers of our own hospitals. The test laid down, derived from private practice, is, however, somewhat too rigid. In the nature of things, nearly all improved modes of treatment of disease, many of which, on their first institution, involve much doubt, must originate in hospitals. Such vast assemblages of the sick can alone admit of the classification and categorical subdivision of cases, the exact adaptation of the conditions of the inquiry, and the *surveillance* of the patient during the investigation. But, with this invaluable *materiel* at his command, the conscientious practitioner will never consent to such employment of it as involves notable risk to the individuals composing it, for the mere chance of some benefit accruing. He will not consider it as a mere *corpus vilum*, which is to be questioned for the purpose of replying to every scientific doubt that may present itself, or upon which every new therapeutical procedure, however senseless, may claim a right to exhibit its worthlessness. He has responsibilities of the most serious kind; responsibilities to the unfortunate beings who have committed their health and lives to his keeping, and whose very helplessness forms an additional claim; and responsibilities to mankind at large, that the vast field of medical observation intrusted to his hands shall not remain unimproved and unproductive. That these responsibilities are, as a general rule, well understood and acted upon both in this country and in France, cannot admit of doubt; and when we consider the vast amount of ability, the untiring watchfulness, and the unbounded supply of every appliance the sick can command in public institutions, we are disposed to believe that it is not in the wards of an hospital that the disparity between the rich and poor is most forcibly illustrated.]

On Dressing Wounds by Occlusion. By M. CHASSAIGNAC.

IN 1844 M. Chassaignac addressed a communication to the Académie des Sciences, giving an account of his mode of dressing all descriptions of wounds by the *prolonged application of strips of adhesive plaster.* This plan had been put into successful operation in respect to wounds accompanying comminutive fractures, large ones accompanied with laceration of tendons and aponeuroses, and wounds resulting from burns, bites of animals, amputations, and resection, &c. Since that period, the same practice has been followed by him, and with the following results: 1. The immediate diminution of the traumatic pain in almost all cases. 2. The absence of traumatic fever in the majority. 3. Diminution in the amount of suppuration,—an important point in the case of large burns and extensive wounds. 4. Prevention of the irritation, and numerous other inconveniences attendant upon the daily exposure of the wound for the purpose of renewing the dressing. 5. The much greater rapidity of the cicatrization, due to the amelioration in the characters of the suppuration, the diminution of the inflammation, and especially the keeping the edges of the wound upon a level with its surface.

This mode of dressing, as applied by M. Chassaignac, consists in the formation of a kind of cuirass over the wounded part, by means of strips of diachylon overlapping each other, and generally disposed in the form of an X. This artificial integument is covered with a piece of rag, perforated with holes, thickly spread with cerate, and everywhere extending beyond the plasters. This rag, covered with charpie, is kept *in situ* by compresses and bandages. This dressing remains on for eight or ten days. If there is too abundant a suppuration, the whole of the apparatus is renewed, with the exception of the plasters, which are not to be removed. During these eight or ten days, the condition of the wound thus concealed is explored by means of gentle pressure made over the wound through the cuirass, or along the course of the lymphatics, the blood-vessels, the tendinous sheaths, and the principal nerves. If inflammatory action is present, a free application of leeches, made either in the vicinity or at a distance from the wound, suffices to disperse it.

The two objects to be kept in view during the treatment by occlusion, are the keeping the surface of the wound itself constantly covered, and the disposition of the strapping so as to allow the discharge a free escape. But the surgeon must not imagine that when he has once applied the strapping, especially in the case of considerable lesions, as in compound fractures, the wounds from operations, crushing of the fingers, &c., he is dispensed from bestowing the greatest attention upon the progress of the case. Thus, if he does not daily expose the plaster to view, carefully examine by gentle pressure the condition of the subjacent parts, expel, by pressing towards the most dependent parts, all accumulations of pus, carefully cleanse all parts of the cuirass contaminated by the pus, support by new strips any enfeebled part, and divide any of those which seem to be making injurious pressure, he will only spoil a good measure by his faulty application of it. Of course the plan is not applicable in those cases, in which the wound has to be inspected daily to decide upon operative interference.

The success which has attended this practice in the hands of M. Chassaignac, as evidenced by the accomplishment of primary union even in large wounds, the prevention of excess of inflammation, and the rapidity of cure, has been witnessed by numbers at his hospital, where the cases can be examined every week, the strapping in the majority being renewed every eight days. It is to be borne in mind that the frequent exposure of a wounded surface, washing, &c., is but to add new sources of irritation, and to delay cicatrization. M. Chassaignac also believes that the first shivering announcing purulent infection may often be observed a few hours after one of these multiple dressings. Several cases are given exemplifying the success of the practice in very serious wounds.—*Gazette des Hôpitaux*, Nos. 77 and 101.

On Maturation of Cataracts. By M. TAVIGNOT.

"I HAVE several times heard M. Roux condemn the expression *maturity*, as applied to cataracts, on the ground of its encouraging a vulgar error, according to which the crystalline apparatus, having attained a certain amount of opacity, tends to separate from the parts to which it adheres, just as fruit separates from the tree when it has ripened. I however believe that the comparison, vulgar as it is, holds good in a certain number of cases, and I shall endeavour to prove this, while exhibiting what has not yet been demonstrated, *the mode of evolution of cataracts, considered in their connexions with the neighbouring parts.*"

The loss of transparency in the capsule of the lens is always accompanied, after a while, with a diminution of the adhesion of this membrane to the peripheric parts.

At the commencement of the capsular cataract, if depression is performed on account of a lens already become opaque, it will be found difficult if not impossible to depress the whole apparatus *en masse*, in consequence of the strong adhesions of the capsule at its circumference. At a somewhat more advanced period of the capsular cataract, appreciable modifications in the condition of the parts have taken place. The anterior capsule has acquired greater consistency, while the medium of union of its circumference with the ciliary zone of the vitreous body presents somewhat less resistance; so that it is now generally possible to completely detach the capsule without any solution of continuity. Still the amount of pressure required to effect this, proves that the adhesions yet offer some resistance; and the attempt at depressing *en masse* would fail, did nôt the increased consistence of the capsule afford a point of resistance for the needle while overcoming them. When, however, the capsulo-lenticular cataract is completely formed, the anatomico-pathological changes are much more marked. The opaque apparatus, in fact, no longer participates in the general life of the organism, and becomes almost as it were a foreign body in the middle of the eye; it tends to separate itself more and more from those parts still endowed with vitality, with which it is normally connected. So true is this, that the slightest accident (such as a fall from a height, or even a mere shock imparted to the head) frequently suffices to displace the opaque body into the anterior chamber, or posteriorly, when the vitreous humour is in a diffluent condition. Thus, if with Delpech we define a cataract as a *necrosis of the crystalline apparatus*, we indicate an analogy, drawn from the spontaneous separation which takes place, though not in the same degree, in the case of the opaque lens and the dead bone. When in such a cataract depression is practised, the slightest movement of the needle suffices to destroy the adhesions; and the varying degree of fixity of the cataract according to that of its maturity, is of importance, not only in reference to the operation of depression, but also that of extraction. It explains why, in simple lenticular cataract, we must incise the transparent capsule, while we do not d this in capsulo-lenticular cataract, the whole apparatus then turning out *en masse*, with the greatest ease. So, too, its greater or less fixity is of importance in the operation of breaking up the cataract. From this greater facility "shelling-out" (*déchatonnement*) of the entire crystalline apparatus, it results that the operations for capsular and lenticulo-capsular cataract are the more easily performed in proportion to the greater maturity of the cataract. M. Tavignot, however, does not agree with the ancient writers, that the cataract becomes harder with time, and hence more easy to operate upon, nor with Janin, that as it grows older it softens. He concurs with Demours, in believing that when once completely formed it undergoes no sensible change in consistence.—*Gazette des Hôpitaux*, No. 81.

On the Statistics of the Mortality from Fractures of the Head. By Dr. FRITZE.

THE following statistical statements are founded upon the careful observation o 301 cases, by Dr. Fritze of Nassau.

1. *Results according to the nature of the injury and mode of treatment*

	Cases.	Rec.	Died.
a. Fissure or fracture without primary affection of brain.	39	34	5

	Cases.	Rec.	Died.
No operation on the skull	29	25	4
Removal of fragments	8	7	1
Trephined	2	2	0
	39	34	5

b. Fissure or fracture with primary affection of brain.	73	34	39

	Cases.	Rec.	Died.
No operation on the skull	49	25	24
Removal of fragments	4	3	1
Trephined	20	6	14
	73	34	39

	Cases.	Rec.	Died
c. Fissure or fracture with depression, without primary affection of brain	44	33	11

	Cases.	Rec.	Died.
No operation on the skull	22	21	1
Removal of fragments	9	6	3
Trephined	13	6	7
	44	33	11

	Cases.	Rec.	Died
d. Fissure or fracture with depression and with primary affection of brain	145	88	57

	Cases.	Rec.	Died.
No operation on the skull	50	39	11
Removal of fragments	26	14	12
Trephined	69	35	34
	145	88	57

	Cases.	Rec.	Died
	301	189	112

Thus there were treated without operation	150	110	40
" " by removal or elevation of fragments	47	30	17
" " by the trephine	104	49	55
	301	189	112

The trephine was employed prophylactically in	16	15	1
" therapeutically	88	34	54
" therapeutically in affection of brain without wounds	1	0	1
" therapeutically in affection of brain with wounds	8	3	5
	113	52	61

Dr. Fritze compares these results of treatment with those derived from the treatment of the cases collected by Blasius and Leisnig. From the comparison, it appears that a greater proportion of recoveries upon the whole occurred in his series of cases than in theirs; but that the results in those cases where the trephine was resorted to, were much more favorable in their cases than in his. This he explains by the fact of all his fatal cases having been the subjects of medico-legal investigation, the whole number that occurred being declared, which was probably not the case with theirs. An impartial and searching criticism of the 112 fatal cases has led the author to the conviction, that, in only 10 of the number, it was possible that trephining, or the earlier resort to this, might have preserved life. But, on the other hand, in 2 of the fatal cases, the operation seemed to be the cause of death: while in 5 of the recoveries it was probably unnecessarily resorted to. The following is the comparative view of the cases:

BLASIUS.	Cases.	Recoveries.	Per cent.
Without operation	242	83	34·3
Trephine	422	270	64
	664	353	53·2
LEISNIG.			
Without operation	260	118	45·4
Trephine or removal of fragments	223	173	77·6
	483	291	60

FRITZE.	Cases.	Recoveries.	Per cent.
Total cases	301	189	62
Without operation	150	110	73·3
Trephine	104	49	47·1
Trephine and removal of fragments	151	79	52·3

2. *Results according to age.*

Under 15 *years of age.*	Cases.	Recoveries.	Died.	Per cent. of recoveries.
Without operation	37	30	7	81
Removal of fragments	14	13	1	93
Trephined	18	11	7	61
	69	54	15	
Adults.				
Without operation	113	79	34	70
Removal of fragments	33	17	16	51
Trephined	86	38	48	44
	232	134	98	

Thus the injuries proved less dangerous to the young, and operative interference was seldomer required; but when resorted to, were more favorable.

3. *Results according to sex.*

	Cases.	Rec.	Died.	Per cent. of rec.
Men	274	174	100	63·5
Women	26	13	13	50

4. *Results according to the seat of injury.* A statistical examination of 291 of the cases, leads to the result, that the minimum of danger exists when the frontal region is the seat of injury; then the vertex; and next the occiput. The danger is the greater, the more extensive the injury is, and the more it traverses the lateral portions of the cranium, towards the basis.

5. *Results according to the cause of the injury.* From an analysis of 298 cases, in which the nature of the injury is stated, it results that it arose from a blunt instrument in 121, from a fall in 100, from a stone in 31, from a pointed instrument in 12, from a kick of a horse in twelve, from a cutting instrument in 13, and from fire-arms in 9. The following is the proportion in which these different injuries were recovered from, in relation to operative interference:

	Treated without operation.	Treated by operation.
Cutting instruments	1·1	1
Pointed "	1	2·3
Blunt "	1·5	1
Stone	1·3	1
Falls	1·5	1
Kicks	1	1
Fire-arms	5	0

Statistics thus confirm what theory would teach us,—that the operation of the trephine is successful in proportion as the cause of injury more immediately limits its operation to the part of the skull that is struck, which is most so the case in wounds from pointed bodies, and least so in those from fire arms discharged close to the head.—*Casper's Wochenschrift*, No. 30.

On the Treatment of Phagedænic Chancres by Arsenic. By M. TESSIER.

M. TESSIER having found the chronic phagedenic ulcers which affect the labia of women suffering from syphilis, most obstinate in yielding to the usual remedies, and bearing in mind the good effects he had often seen arise from the use of *arsenic* in old scrofulous and herpetic ulcers, determined to employ it. One part of white arsenic was rubbed up with 1000 of starch, and a portion, one or two lines in thickness, applied daily, by means of a spatula, over the diseased surfaces. The ulcers soon become cleaner, granulations were developed, the edges became flatter and cicatrized, while the elephantine *engorgement* of the labia disappeared. In some patients, slight colics were felt, and, in others, acute inflammation of the ulcer was produced. The treatment was then suspended for several days. In other cases, a solution of the same strength was used instead of the powder, and applied by means of lint. The same application has been made to obstinate blenorrhagic ulcerations of the cervix uteri, and, in several cases, with the best success. With many women, however, the application there cannot be borne, except for a few days, on account of the painful vaginitis or the severe colics it gives rise to, these disappearing or reappearing according as the medicine is suspended or resumed.—*Gaz. des. Hôpitaux*, No. 105.

On Congenital Cataract. By M. Tavignot.

There are very great and important anatomico-pathological differences between a congenital cataract examined soon after birth, and one seen only several years later, say towards the adult period. The recent congenital cataract is capsulo-lenticular, while the older one is capsular only. Saunders first explained the mechanism by which this change is effected. The lens of the recent cataract gradually softens, and the capsule actively absorbs it, so that it entirely disappears by the seventh or eighth year. But as in general no fluid replaces the removed lens, the anterior portion of the capsule falls back, and adheres to the posterior, which, by reason of its attachment to the hyaloid membrane, undergoes no displacement. The posterior chamber of the eye becomes thus much enlarged, and the iris, in contact with the increased quantity of the aqueous humour that fills this, receives from it during the contraction of the muscles of the eye an undulatory movement which has been designated as a tremulance of the iris. The surgeon should understand the true value of this symptom, for it has been regarded erroneously by some authors, as indicating the existence of a synchysis or an amaurosis.

After describing an operation for congenital cataract which he had performed on a subject twenty-two years of age, M. Tavignot goes on to observe :—" According to an opinion very generally received, the success of an operation for cataract is in the inverse proportion to the duration of the disease ; and this from the state of torpidity or paralysis into which the retina has fallen, from its functions having ceased for so many years. But experience formally contradicts this. I published, in the ' Gazette Médicale' for 1845, a series of cases, in which operations for cataracts, dating 10, 20, 30, 40, and 50 years, were attended with complete success. In point of fact, the presence of a cataract, although it prevents the perception of objects, does not prevent the passage of the rays of light to the retina ; and however limited the degree of exercise of the retina may be, it suffices to inform us of the degree of aptitude for the resumption of its functions after a successful operation. That amaurosis may coexist with cataract, the experience of every day assures us ; but the two affections have a different origin, or may be developed by a similar cause ; in no case does the cataract induce the amaurosis, any more than the amaurosis gives rise to the cataract."—*Gazette des Hôpitaux*, No. 50.

MIDWIFERY, &c.

On Extra-Uterine Pregnancy. By Dr. Gordon.

A negro woman, æt. 41, about six months advanced in pregnancy, was seized with symptoms of labour in the middle of June, 1848 ; and, on examination, a body of considerable size was felt lying in the cavity of the pelvis, between the vagina and rectum, and on which the mouth of the womb was pressing with considerable force. Pains continued at intervals, and on the 20th of July, a consultation was held on the case. The opinion already entertained, that the foreign body felt in the pelvis was an extra-uterine fœtus, was adopted by all. During the consultation, violent labour-pains came on, and, as delivery was impossible with this firm body blocking up the pelvis, an operation was determined on. An incision, three inches long, was made in the posterior wall of the vagina, and the head of a fœtus felt by the finger, passed through the wound, to be pressing on the perineum. Vain attempts to extract it by the forceps and other instruments were made, and the incision was enlarged. During each uterine contraction, the body was pressed forcibly against the perineum, and the index-finger of the one hand having been passed into the rectum, and that of the other through the wound, a sufficient purchase was gained upon the child's neck to raise the head from the bed of the vagina; and then, by a violent pain, it was expelled far beyond the vulva. The fœtus was, however, still firmly held against the vulva by three fleshy bands, one of which seemed to be the remains of the funis. All three proceeded towards the upper and posterior part of the pelvis. They were divided, and, on tracing them backwards, were found conjoined into a flesh-like substance, six inches in diameter, and one and a half thick, which was attached high up in the pelvis. Very little hemorrhage resulted from the division ; but it was not deemed prudent to pursue the bands, which, indeed, after the delivery, completely receded beyond reach. The fœtus, thus extracted, consisted of an agglutinated cartilaginous and osseous mass, some of the bones being tolerably well formed, others only imperfectly so. It measured, from the vertex to the forehead, 2¾ inches ; in its biparietal diameter, 2½ inches ; from shoulder to shoulder, 2 inches ; from vertex to coccyx, 5 inches.

As soon as it was removed, all labour-pains ceased, to become renewed on the 22d, when, after two hours' duration, a child was born that lived only three hours. The date of the extra-uterine conception was traceable back to 1836, since which time she had borne five living children. As long as the tumour continued high up in the abdomen, it only caused occasional uneasiness ; but having, three months prior to the operation, descended into the pelvis, it gave rise to great mechanical obstruction and constitutional disturbance. The woman did very well.—*New York Journal of Medicine*, N. S., vol. iii, p. 132.

Prolapsus Uteri during Parturition. By Dr. Harting.

Called by a midwife to a primipara, Dr. Harting was astonished at finding that, under the influence of strong and continuous pain, the lower half of the pregnant uterus had become propelled beyond the external parts. The os uteri was closed, and so rigid, that the point of the finger was forced through it only with great difficulty. The membranes were not yet ruptured, and the child's knee was felt through them. All attempts at returning the organ only excited great suffering, and induced a bearing-down that aggravated the evil. A crucial incision was made into the indurated os, the liquor amnii discharged, the child's knee seized, and delivery gradually accomplished, the midwife supporting the uterus the while. After the removal of the placenta, the uterus was easily returned ; and the patient, after having been kept on her back for three weeks, did not find the prolapsus reappear on resuming the erect posture.—*Medicinische Zeitung*, No. 22.

Case of Complete Inversion and Expulsion of the Uterus terminating favorably.
By Dr. Yardley.

Dr. Yardley was suddenly called to a lady of delicate frame, who had suffered much from watching and grief during her pregnancy ; and on his arrival found that she had become suddenly confined, the after-birth not having come away, and a female having hold of the funis, in order to prevent its "going up." She was pale and pulseless, and, on examination, he found a large placenta still attached to an inverted uterus, which had entirely passed without the vulva. He easily separated the placenta, and returned the uterus with facility; but it remained so flaccid, that he dared not remove his hand from within it for half an hour or more, contractions being at last induced by his irritating the internal surface of the uterus, and by the administration of ergot. The convalescence was tedious, but recovery was complete. He justifies his departure from the general rule of returning the uterus before detaching the placenta, by the great difficulty which attends that procedure when the placenta is large, so that the best practitioners have sometimes been compelled to desist from attempting it.—*Amer. Journ. Med. Sci.*, No. 35, p. 126.

On the Induction of Premature Labour by the Uterine-Douche.

By DR. ORTWIN NAEGELE.

PREMATURE labour had, on two former occasions, been induced, in the subject of this case, with successful results, by means of the sponge-tent; but, on the first occasion, eighteen, and, on the second, seventeen days were required to accomplish it. Dr. Naegelé, therefore, on the present occasion, resolved to put into force the means proposed by Kirnsch, and simplified by Cohen. The termination of the labour was expected on the 15th September, and he commenced the attempt to anticipate it on the 2d of August. The patient sat on a stool, with the upper part of her body bent somewhat backwards, the nozzle of a syringe containing 11 oz. of water at 27 R., was passed half an inch within the os uteri, and the water injected with considerable force eight times in succession. In the evening, the injection was repeated seventeen times. She slept well; and, early on the 3d, labour-pains having commenced, she was syringed other ten times. In the afternoon, the pains had become stronger and regular, and the os uteri was sufficiently open to allow of the child's head being felt. Seven more injections were employed, the pains still increased in severity during the night, and, on the morning of the 4th, a living child was born, i. e. only forty-six hours after the first syringing. The placenta soon followed, and she did well.—*Medicin. Zeitung*, No. 36.

On Plugging the Vagina with Vulcanized Caouthcouc. By M. DIDAY.

M. DIDAY, having a case of *metrorrhagia*, in which the patient had become reduced to almost the lowest point of exhaustion, resolved to avail himself of one of Dr. Gariel's ingenious applications of vulcanized caoutchouc. The apparatus consists of a small bladder of caoutchouc, to which is attached a long tube. Rolled up so as not to exceed the little finger in size, it was passed as deeply into the vagina as possible, and kept there by the end of the finger; it was then inflated through the tube, until the small body, which had been introduced almost imperceptibly, acquired a volume constituting a sphere of about 33 centimetres in diameter. The air was retained by tying the tube. No means of retaining it *in situ* were required, and the hemorrhage entirely ceasing, it was removed, sixty-four hours after, as easily as introduced, by allowing the air to escape through the tube. Any one who is aware of the pain and uncertainty attending the ordinary mode of plugging the vagina, must agree with M. Diday that this is a most useful apparatus. Its advantages consist, he adds—1. In its simplicity, and the rapidity with which it may be employed. Thus, it only weighs about half an ounce, is soft and flexible, admitting of being put in the instrument-case, and is applied in a few seconds. 2. It causes no pain either during or after its application, and requires no bandage to retain it. 3. It admits, before insufflation, of being moulded on the parts to be compressed, and thus can exert compression upon a cavity, however irregular in form. 4. It allows of any degree of diminution or increase of pressure to be made, according to the exigencies of the case. 5. It is impermeable to, and incorruptible by, whatever discharges it comes into contact with, and never loses its elasticity. 6. Distended only to a third or fourth of its natural extensibility, it is just as smooth, and possesses nearly as great a resisting power, as when fully distended. 7. A somewhat larger apparatus would be available for plugging the cavity of the uterus itself, in hemorrhage after delivery. Moulded on the inner surface of that organ during its state of inertia, as this became recovered from, the air would be gradually let out, and the size of the compressing vessel diminished *pari passu* with that of the uterine cavity.

Dr. Gariel has availed himself of the remarkable properties of the vulcanized caoutchouc (its unalterability by corrosives, its preservation of elasticity at all temperatures, its great strength, and its resumption of its original size after however great extension) for the construction of a vast variety of surgical apparatus, some of which exhibit great ingenuity. Thus there are bandages, means for making extention and counter-extension, means of exerting compression from within, as in stricture of the urethra, plugging the nares, plugging the vagina, pessaries, or from without, as in hernia, and other pads. One of the most simple of these is a portable urinal, which is of such a trifling size and weight, as to cause no inconvenience or ill appearance. The penis is adapted to the orifice of this just as the wrist is to the India-rubber band of a glove, and, the material being impermeable, no smell iissues. When opportunity offers, without displacing the vessel, the patient discharges the collected urine by means of a little cock attached to it.—*Gaz des Hôpitaux*, No. 141; *Gaz. Méd.* No. 45.

On Diminution of the size of the Child by Regimen and Venesection.

By M. Depaul.

M. Depaul, fully appreciating the advantages derivable from the induction of premature labour in contracted pelvis, yet believes that the necessity of doing this may be avoided in certain cases, by submitting the mother to regimen and repeated venesection. His attention was first directed to the subject by hearing M. Moreau, in his lectures, express a favourable opinion upon the feasibility of the procedure, founded upon a case that had occurred to him. M. Moreau had attended a woman in two labours, which were very difficult ones, in consequence of considerable pelvic contraction. Apprized that she had again become pregnant, he submitted her to a severe regimen and repeated venesection, and the result was, that a small living infant passed without any aid. In a later pregnancy she was not submitted to any regimen, embryotomy was had recourse to, and both mother and child died. M. Moreau has since met with other similar cases; but he believes that when the antero-posterior diameter of the pelvis is less than 3 and one fourth inches (French), or at most 3 inches, regimen can only be relied upon as an auxiliary. The influence of feeding on the size of the young is well known in rural districts and to veterinarians; while in women who reject nearly all their food during pregnancy, the child is often very small. This is also the case with the women that come to the *Maternité* to be confined, after undergoing the greatest privations during pregnancy.

Dr. Depaul relates two cases which have occurred in his own practice. Madame G——, of small stature, and having some degree of contraction of the pelvis from rickets, bore, in 1843, a full-sized, still-born child, after a very difficult labour, and the use of ergot. In 1846, she was delivered of a large, still-born child by the forceps. She conceived again November 21st, 1847; and although the induction of premature labour had been predetermined upon in the event of another pregnancy, yet she earnestly entreated that a full trial should be given to regimen. Accordingly, from February, her diet was limited to *potages* and vegetables, a little meat once a week, and half a pound of bread per diem; and although a healthy person, with vigorous appetite, she cheerfully submitted to the privation. About 400 grammes of blood were abstracted from her arm in the 3d, 6th, 8th, and 8½th month. She became pale and thin. On the 19th of August labour commenced, and was rapidly finished. The child was small, weighing only 5 lbs. (the two others had each weighed 9lbs.), but cried, and did well. The mother now allowing herself a better diet, soon recovered her strength.

The subject of the *second* case had been formerly attended by M. P. Dubois, who, finding a rickety pelvis, contracted to 3 inches, had perforated the child's head. On the present occasion he had recommended the induction of premature labour at the 8th month. Labour-pains, however, set in of their own accord, and the author, summoned in the absence of M. Dubois, brought away a small, living child by means of the forceps. It weighed 2600 grammes, and the bones of its skull were of a remarkable thinness. It was discovered afterwards that this woman had really gone her full time, having, after various futile attempts at procuring abortion at an early stage, resolved to submit herself to a debilitating regimen. This she commenced at the second month, being then rather stout, and having an excellent appetite; and she throughout continued an almost starvation regimen. At first she was much tormented by epigastric pain and intense thirst, requiring large quantities of water to allay it, and she soon became very thin and feeble; but having beceme accustomed to her privation, she suffered, during the last three months but little from its continuance. After her confinement, a judicious diet soon restored her strength and flesh, and she was able to suckle her child. This case is therefore more satisfactory than the former, inasmuch as the same end was obtained without resorting to venesection.

The procedure would be justifiable in those cases in which the woman, without having any notable diminution of the pelvis, yet always brings forth, owing to their size, only dead children. In moderate contraction of the pelvis, too, it may be resorted to, and although not available in cases of excessive contraction, it may even here be used as an auxiliary, enabling us to delay somewhat longer the period of inducing premature labour, and thus give the child an additional chance of life. During the progress of the case, frequent examination should be made, so that we may ascertain, by the degree of development of the uterus, the mobility of the child, and the abundance of the liq. amnii, how far our success is probable. If from this we conclude our end cannot be gained, we should resort to artificial means for terminating the pregnancy. It is not desirable to commence the debilitating regimen prior to the 3d or 4th month, as before that period the development of the fœtus takes place very slowly, and the pregnancy is much more easily endangered by whatever affects the maternal system. It would, too, be probably better if the amount of aliments were gradually diminished, so as the more easily to accommodate the system to so painful and so prolonged an experiment. The strong meats should be quite abstained from, and, as a general rule, three fourths of the nutriment should be cut off. Much will depend upon the state of the circulation in guiding our decision as to the employment of venesection.—*Bull. de Thérapeutique*, tom. xxxvii, pp. 19-27 and 109-120.

[When we bear in mind that women who have suffered during their entire pregnancy from excessive sickness (M. Depaul, however, states that some of these do not reject their aliments), and others whose system has become exhausted by want or disease, yet sometimes bring forth voluminous children, it is evident that M. Depaul's recommendation does not admit of a large generalization. Indeed, with some women, the production of large children seems to be as natural as the possession of any personal peculiarity, and by no means dependent upon the mode of life they adopt. Still there are cases of deformed pelvis, where it may be of great importance to have a living child, in which the plan is well worthy of a trial; for if, by its agency, a small, living child is born at its full time, its chances of surviving will, doubtless, be very superior to those even of a larger infant prematurely brought forth.]

Rupture of the Uterus, with Escape of the entire Ovum into the Peritoneum, at the full time. By Dr. Stoltz.

The researches of Dezeimeris, Trask, and Duparcque go to show that it is only during the first three months that the entire ovum passes into the peritoneal cavity; and probably, in this respect, the present case is unique. It occurred in the person of a lady of good health, and in her eighth pregnancy. A good deal of hemorrhage had occurred from the implantation of the placenta into the cervix uteri, the nature of the case being mistaken by the midwife, who had seated the patient over some warm water, and had probably used some attempts at dilating the os uteri. When Dr. Stoltz arrived, she had just expired. On opening the abdomen, a tumour was found, formed of the child, in its natural attitude, and completely surrounded by its membranes. Between it and the spinal column, resting upon this and the left iliac fossa, surrounded by coagula and fluid blood, lay the contracted uterus, through a rupture of which, extending from the anterior *cul-de-sac* of the vagina to the fundus of the organ, looking just like an incised wound, the entire ovum had then passed, the fœtus being a full-grown one, and remaining connected by the funis to the placenta, the anterior portion of which was detached from the cervix of the uterus.—*Archiv. Génér.*, tom. xxi, p. 222.

Vagitus Uterinus.

Dr. Landsberg, in a long article on the hydrostatic test, in Henke's 'Zeitschrift,' relates a case of this which occurred in the person of a stout muscular woman, who continued in strong labour-pains from the Saturday to the Thursday, when the liquor amnii was discharged, and a normal occipital presentation felt. While the author, finding no cause for interference, was counselling patience to a very unruly subject, he and others in the small chamber distinctly heard the voice of the child proceeding from the mother's belly, sounding just as it would if issuing from underneath a covering. It ceased after a while; and, as no progress in the labour seemed to be taking place, Dr. Landsberg delivered the woman, with the forceps, of a still-born child, which, however, was soon reanimated. He observes, there was not here the large pelvis which some authors represent as always found in such cases.

He adds, that there thus may occur cases in which, although it is evident the child has breathed, it becomes difficult or impossible to declare whether respiration commenced *in utero* and became arrested during the progress of birth, or whether it commenced first after birth, and was then obstructed by forcible prevention of the entrance of air into the passages. In most cases, we have evidence of external violence, while *vagitus uterinus* must always be considered a most rare occurrence, happening, for the most part, only in very tedious labours, while clandestine labours are usually very rapid ones, the child meeting its death then from blows, falls, or other injury. As a general rule, we may say that *vagitus uterinus* can be supposed to have occurred only—1, When the labour has been very tedious; 2, When the liquor amni has been long discharged; 3, When there are no objective signs of violence having been employed upon the child; 4, When none of the signs of the accidents are present which commonly result from a tedious labour, especially apoplexy. Dr. Landsberg, however, quotes a case related by Zitterland (Henke's Zeitschrift, 1823, p. 237), in which the child is stated to have cried long and distinctly before the least signs of labour came on, the first pains and the opening of the os uteri not taking place until the following day. The child was still-born, but restored to life.

Two other cases, besides the one quoted in our last, have been recently published. One of these occurred to Dr. Falkenbach, who, during the operation for turning for a cross-birth, and while the child was undoubtedly entirely within the uterus, heard it cry loudly several times, as did other persons in the room. The other case, too, related by Dr. Koehler, occurred during the attempt to bring down a second foot in turning. The tone of voice was just like that peculiar one uttered by the new-born child, but somewhat duller, as though the child were in a cellar or lower apartment. It continued crying at intervals for two or three minutes. After this, the delivery was accomplished quickly, until the shoulders arrived in the pelvis, which was rather narrow, while the child was a large one. Both they and the head passed through with great difficulty, and the child was born dead, beyond recovery. The child's cries, while *in utero*, were heard by three other people in the room, as well as by the midwife, who was hard of hearing. The chest was examined twenty-four hours afterwards, and was found to be well expanded. The convexity of the diaphragm upwards was less than in the fœtal state. Although the lungs did not completely fill the cavity of the chest, they did so to a considerable extent, in part covering the pericardium. The lungs, heart, and a very large thymus gland were removed, and, being placed unseparated in a small vessel of cold water, swam completely. The lungs were of a bright red, with here and there some blueish spots. On incision they crepitated, and some foam and a little blood flowed out. When cut under water, large air-bubbles rose to the surface, and when divided into small portions, each of these swam. The air-cells of the periphery had alone not become completely filled with air, whence the blueish spots found there; but still not the smallest portion of the structure sank.—*Henke's Zeitschrift, Suppl. for* 1849, pp. 194, 218; *Medicinische Zeitung*, Nos. 20 and 30.

[This last case is certainly one of high interest in reference to the inferences to be drawn from the application of the hydrostatic test. A train of circumstances can be easily imagined, which might have led in it to an unjust charge of infanticide, if this test possessed the judicial authority which it once did.]

Mortality from Puerperal Metro-Peritonitis at Paris and Vienna.

M. Maurat has published in the 'Rev. Médico-Chir.,' a short paper on puerperal metro-peritonitis, which is chiefly interesting as exhibiting the mortality that takes place at the various hospitals of Paris from that affection. The proportion of deaths to deliveries were as follows:

	1844	1845	1846	1847	1848
Hôtel-Dieu . .	1 to 18	1 to 21	1 to 15	1 to 28	1 to 34
La Pitié . . .	1 to 8	1 to 12	1 to 12	1 to 9	1 to 12
La Marguerite . .	1 to 12	1 to 31	1 to 21	......	1 to 33
Hôpital des Cliniques	1 to 28	1 to 30	1 to 27	1 to 42	1 to 50
Maison d'Accouchements	1 to 23	1 to 27	1 to 26	1 to 31	1 to 37
Beaujon . . .	1 to 17	1 to 16	1 to 14	1 to 58	1 to 26
St. Louis . .	1 to 15	1 to 26	1 to 38	1 to 56	1 to 93

M. Maurat attributes the diminished mortality at the St. Louis to the great care M. Malgaigne has taken during the last two years to prevent the newly-confined woman from becoming chilled. To this end he has the bedclothes kept close around her, and all that has to be done for her is done beneath them, so as in no wise to expose her.

In the same journal is an account by M. Wieger of the success of the prophylactic measures recently employed at the Vienna Hospital. M. Wieger furnishes the following table of the mortality which occurred in that institution during the following years:

Date.	Deliveries.	Deaths.	Per cent.
1840	2810	267	9·50
1841	2845	238	8·44
1842	3067	521	16·98
1843	2871	274	9·57
1844	2918	260	8·91
1845	3255	241	7·40
1846	3554	459	13·68
1847	3375	176	5·21
1848	3526	45	1·27
Mean mortality during the first seven years			10·70

The students were, prior to 1847, allowed to go from the dissecting-rooms or hospital wards, into the lying-in wards, without taking any precautions; but at the end of May 1847, they were compelled to employ the prophylactic procedure recommended by M. Semelweis, viz. the thorough washing the hands in a saturated solution of chloride of lime. The mortality at once diminished, and continued to do so as seen above, and as it has during the early months of 1849. The nature of the evil calling for remedy was indicated by the startling fact that, on the separation of the *cliniques* into one for the female students, and one for the male, in a nearly equal number of deliveries, 32 deaths occurred in the one, and 600 in the other. In June 1847, the disparity had ceased.—*Revue Médico-Chirurgicale*, vi, 136 and 173.

MATERIA MEDICA AND THERAPEUTICS.

On Sulphuric Acid in Singultus. By Dr. Schneider.

During a long practice, Dr. Schneider has met with many cases of hiccough occurring in both sexes and at different ages, and persisting with such obstinacy a to give rise to great suffering and exhaustion. His sovereign remedy in such cases is one of the preparations of dilute sulphuric acid, which act with great promptitude. He refers also to the testimony of Dr. Duncan, in favour of this substance contained in the 'Edinb. Med. Comment.,' and to that of Dr. Jacobsen, of Berlin. —*Casper's Wochenschrift*, No. 22.

On the Preservation of Leeches. By M. Dominé.

M. Dominé states that, after a patient trial of the various means which have been recommended for preventing the great loss of leeches which is caused by the adhesion of glutinous matter to their bodies, frequently dividing them into compressed segments, he has finally, for some time past, adopted with great advantage the use of *moss* (*Hypnum triquetrum*). The greenest should be chosen and be thoroughly washed and cleaned. With this a glass vessel should be filled, and covered over with a cloth. In winter it suffices to introduce it and the leeches in a moistened state; but in hot weather, a little water should be introduced at the bottom of the vessel. In hot weather, too, they require changing every other day, and to be kept in a cellar. In winter they may be kept in a healthy and vigorous state, without changing, for a fortnight, or a month, the glutinous matter being rubbed off by the moss as fast as secreted. In stormy weather, in spite of all our precautions, a certain number of leeches will always perish.—*Journal de Pharmacie*, xvi, 109.

[The Editor of the periodical observes, that M. Dominé does not seem to be aware, that what he represents as a glutinous matter exuding from the body of the leech, is really the epidermis of the animal, the detachment of which is a normal procedure, which, owing to the artificial condition in which we keep it, is not accomplished with the same facility as in a state of nature, and therefore several leeches generally die during the process. Any attempt at hastily assisting its detachment seems to cause the animal great suffering, and probably the moss is a very eligible agent for facilitating this during the leech's own movements.]

M. Recamier's *Aloetico-febrifugic Elixir.*

The obstinacy of certain intermittent fevers and neuralgic affections is familiarly known, and when it is sought to contend against this by largely increasing the dose of quinine, very mischievous results sometimes follow, especially in persons of constipated habit, who then often suffer from long-continued disturbance of the sight and hearing. The following formula devised by M. Recamier has in his hands, and in those of various other practitioners, been found of great utility in these cases:

Powdered socotrine aloes . .	6 parts
Picked myrrh	6 ,,
Rum	150 ,,
Alcohol	20 ,,

Macerate for twenty-four hours, and add to the filtered liquor—

Sulph. quinine (previously acidulated) .	6 parts
Sydenham's laudanum .	2 ,,

The dose is a teaspoonful for children, and a tablespoonful for adults. The patient should keep himself warm in bed after each dose, and should abstain from drink at least two hours. In rheumatic affections, additional advantage is derived by adding four parts of powdered colchicum bulbs.—*Journal de Pharmacie et de Chimie*, tom. xv, p. 377.

On Nitrate of Silver in Jaundice By Dr. Peebles.

Dr. Peebles' attention was first accidentally arrested to this remedy, by the fact of a patient, who had been jaundiced for two months, and had also latterly suffered from severe gastric disturbance, having applied to him for the relief of the latter affection, and requested him to leave the jaundice to itself, owing to his dread of mercury, which he had heard was necessary for its cure. The doctor complying, treated the case with nitrate of silver, and was surprised to find the jaundice rapidly disappear. Since that period he has found it of great efficacy in cases of idiopathic jaundice, when the affection seemed more dependent upon gastro-duodenal disturbance than upon any disease of the liver itself. He has given from three quarters to one grain twice a day on an empty stomach, and has not found it necessary to continue the medicine more than ten days, the yellow colour often diminishing by the second. Where constipation exists, the ext. rhei. and tarax. may be added.—*Amer. Jour. Med. Sc.* No. 35, p. 59.

[Although obliged to Dr. Peebles for pointing out a means of the more speedy removal in some cases, of so tedious an affection of jaundice, we cannot congratulate him upon the manner in which he stumbled upon it. If patients are to be allowed to dictate what symptom they will, and what symptom they will not have treated, what remedy prescribed and what proscribed, there will be an end to all scientific and satisfactory practice of the profession.]

On Aconite in Dysentery. By M. Marbot.

M. Marbot, surgeon-major of the Crocodile man-of-war, found himself in the midst of an epidemic of dysentery, a few days after the vessel had left Zanzibar, nearly every one on board being sooner or later attacked during its two months' continuance. At first a condition of *embarras gastrique* prevailing, the cases were successfully treated by ipecacuanha and sulphate of soda; but the vessel returning into the warmer latitudes, the affection assumed an inflammatory type. There was intense fever, hard, contracted, rapid pulse, violent headache, a dry and bitter mouth, though the tongue was flattened and not much loaded; tenderness of the abdomen, colic, distressing pulsation in the right hypochondrium, and tenesmus were present. The emetico-purgative plan now entirely failed, and M. Marbot feared the necessity of bloodletting, of the general inutility of which in hot climates he had had frequent opportunities of judging. He however bethought himself of *aconite*, from which he had derived great benefit in acute rheumatism. Its effects quite surpassed his expectations, for the inflammatory excitement subsided in less than a day, and the blood disappeared from the stools in a few hours. From this time he gave the remedy even from the commencement of the disease, and he always found it remove the hemorrhage and abate the fever, the pain in the belly too becoming relieved, and the stools passing easier, even a few hours after the first dose. But the aconite exerts no other effect upon the stools than removing the blood from them, their mucous, glairy, &c. characters continuing as before, and even their number not undergoing a diminution proportionate to the improvement of other symptoms. The aconite, then, would seem to exert a very feeble action on the intestinal contractions, but promptly subdues the febrile reaction and the excitement produced in the various organs. The dose required is not large, being but from five to ten centigrammes of the extract in the twenty-four hours, diluted in water, and given in fractional portions every two or three hours.

The aconite does not *cure* the dysentery, but so modifies its nature as to render it amenable to treatment that before proved useless. Thus, as soon as the reaction is reduced, M. Marbot has at once recourse to ipecacuanha, allowing a day to intervene between each dose. After the stools become somewhat reduced in number, we may follow up the advantage by the use of the starch and opium clysters. Mercury should be substituted for ipecacuanha, when hepatitis or a disturbance of the secretions of the liver or pancreas is present, and the stools are found green, opaque, or foamy, i. e. muco-purulent. Opiates are useful only after the above-named remedies have produced their effects, and are injurious as long as any inflammatory action is present. Quinine is useful in hot climates, when the disease is masking a remittent.

Upon these principles M. Marbot treated his 300 cases, some of which were of the severest character, and others attended by relapses, without losing a patient.

A trial made in Paris of this remedy leads to the belief that it may be advantageously used to render the evacuations in dysentery and diarrhœa less irritating, and for the relief of the febrile reaction set up at the end of phlegmasiæ. The extracts prepared from the plant growing near Paris, and from that growing on the Alps, differ so much in activity, that it is recommended whenever the extract seems not to avail, to substitute the tincture as a more certain preparation.—*Bulletin de Thérapeutique*, tom. xxxvii, pp. 105-9.

Lupulin as an Anaphrodisiac. By Dr. Page.

"More than two years since, I introduced lupulin to a limited extent into the Philadelphia Hospital as a remedy to prevent nocturnal erections in different forms of acute venereal disease; and have subsequently used it sufficiently often in my practice, to justify its presentation to the profession as a very good article for the purpose, one of great efficacy, and entirely free from many of the objections to the preparations of camphor, opium, dulcamara, stramonium, &c., which have hitherto been relied on. One of the most painful and troublesome attendants upon gonorrhœa is chordee, brought on by nocturnal erections, the occurrence of which has been completely prevented by the administration of lupulin at bedtime. In acute gonorrhœa it not only prevents erections, and consequently chordee, at night, but it also seems to exercise a very soothing effect on the inflamod urethra, and to facilitate the operation of medicines for the cure of the disease. Relief from the troublesome pain in the perineum, in chronic gonorrhœa, and during the treatment of stricture with the bougie, has been obtained by the administration of lupulin alone. In the treatment of chancres on the penis, the process of healing is often interfered with, and the efforts of nature and of the surgeon placed somewhat at defiance by the occurrence of erections which distend the parts and lacerate the edges of a weak or imperfectly-formed cicatrix. In this disease lupulin has been used with the desired effect. The lupulin has been administered for nocturnal seminal emissions, and although it does not claim a curative power in this disastrous affection, it will prevent their occurrence so long as the patient is freely under its influence, and will give the practitioner an opportunity to prosecute any treatment which he may adopt, with an increased prospect of success, from the interruption to the habit of the disease, and from the prevention of erections when topical applications are made to the urethra."

Other practitioners have confirmed the opinions expressed above and Dr. Hartshorne furnishes an example in which the venereal appetite was completely suppressed in a case of onanism by the administration of two-grain doses several times in the twenty-four hours. The ordinary dose is from five to ten grains, in the form of powder or pill, given at night, and repeated if required. It does not give rise to headache, constipation, or other unpleasant consequence.—*Philadelphia Med. Exam.*, N. S., vol. v, p. 285.

Phosphorous and Arsenical Pastes for the Destruction of Animals. By M. Duboys.

The Ecole de Pharmacie de Paris having, after the ordonnance of 1846, been forbidden the sale of uncombined arsenic, devised the following formula to be used in the destruction of animals:

Melted fat	1000	parts
Flour	1000	,,
Arsenic	100	,,
Lampblack	10	,,
Essence of aniseed	1	,,

Owing, however, to the superior efficacy of the *phosphorous paste*, the above has found little favour. M. Simon, of Berlin, in 1845, furnished the following formula;

Phosphorus	8	parts
Tepid water	180	,,
Rye flour	180	,,
Melted butter	180	,,
Sugar	125	,,

M. Dovrauli, in 1847, thus simplified the above:

Wheat flour	300	parts
Boiling water	1000	,,
Phosphorus	6	,,

But after repeated trials of these and other preparations, M. Duboys gives a decided preference to the following:

Phosphorus	20	parts
Boiling water	400	,,
Flour	400	,,
Melted fat	400	,,
Nut-oil	200	,,
Powdered Sugar	250	,,

The phosphorous is placed in a porcelain mortar, and immediate liquefied by the boiling water. The flour is rapidly, but gradually added, while the whole is stirred by a wooden pestle. When this has become nearly cold, the melted fat, while yet gently warm, is added, the oil next, and then the sugar; the whole being constantly stirred until quite cold. The paste must be kept in well-closed vessels, so as to exclude both light and air. Spread very thinly on slices of bread, it is devoured with the greatest avidity—*Journal de Pharmacie*, xvi, 119.

[The fact of the existence of these substitutes for white arsenic, in powder, cannot be too generally spread or too frequently repeated, as they seem to have hitherto excited a very insufficient amount of attention in this country. Judging from the utter impunity with which this substance is allowed to be sold, notwithstanding the rapid increase of the revolting crimes it has been the means of perpetrating, one would suppose that some overpowering necessity for its use existed, and led to the toleration of a practice that otherwise common sense and common humanity would long since have put an end to. Not so: apathy, and that singular disposition to allow everybody to do as they like, even though their neighbours may suffer therefrom, which threatens to degenerate into a morbid national idiosyncrasy, lead to the toleration of this and so many other nuisances. The cholera comes, and, during the moment of panic, produces the removal of many of these; and we should have thought that the enormous number of poisonings which have recently been brought to light, ought to have sufficiently alarmed the moral sense of the community, to have, ere this at least, diminished the facilities of their repetition. It has been left, as in so many other points bearing on the public health, for the medical profession to take the initiative; and it is greatly to the credit of the Provincial Medical and Surgical Association, and the Pharmaceutical Society, that they have come to the resolution of so doing.]

FORENSIC MEDICINE AND STATISTICS.

Medical Jurisprudence of Insanity.

It seems that the strange sayings and doings of the lawyers of the Old World, in respect to the jurisprudence of insanity, are not without their parallel on the other side of the Atlantic; but while these learned persons with us are incapable of appreciating the distinctions that science has long since rendered sufficiently obvious, their *forte* there would seem to be the violation of the dictates of common sense in an opposite direction.

A stranger was observed in the streets of Albany brandishing a pistol and bowie knife, in a state of excitement. Pursued by several men and boys, he bade them not approach, as he was armed. They, however, pursued him, throwing stones at him, when presently he turned round, and fired his pistol at a young mechanic named Mull, who seemed to be acting as the leader of the mob. Only slightly wounded, Mull rushed in upon the man, who then stabbed him in the side, and he died. After his apprehension, the stranger turned out to be a person of property, who was labouring under the delusion that persons were in pursuit of him in order to rob him; but in all other respects seeming sane. He was pronounced a lunatic and committed to an asylum.

Mull's widow brought an action of damages against the lunatic, and Judge Parker laid down the law that if the conduct of a madman was such as to endanger the safety of those about him, Mull and the others had a perfect right to employ all the force necessary to secure him, and that if the defendant during such attempt inflicted a fatal wound on Mull, he was *civilly* liable for the damage caused, though he could not be *criminally* responsible for the act, in consequence of his insanity. If a lunatic took property belonging to another, he was liable to make the injury good by damages in a civil suit. The rule was the same, whether the injury was done to the person or to the property of another. But if such a suit was brought to obtain indemnity, nothing could be added to damages by way of fine or punishment, for the lunatic was incapable of intending wrong. He was not responsible for any wrong intention, and could not be punished under indictment or otherwise, for any injury he might commit. The jury gave 2800 dollars damages.—*American Journ. of Insanity*, vol. vi, p. 94.

Statistics of the Medical Profession in Prussia.

Date.	Inhabitants.	Physicians.	Surgeons.	Apothecaries.	Total.		Midwives.
1822	11,664,133	1685	2289	1232	= 5206	:	10,016
1846	16,112,938	3488	1966	1430	= 6884	:	11,372

Thus, in 24 years, the population increased . . . . 38·14 per cent.
,, physicians ,, ... 107 ,,
,, apothecaries ,, ... 16·07 ,,
,, surgeons diminished . . . . 14·11 ,,

So that, while the increase of the physicians has been almost three times as great, proportionately, as the population, that of the apothecaries (answering to our druggists, and not allowed to practise) has been one half less; and the number of the surgeons (an inferior order of practitioners, answering to our chirurgeons of former days), has undergone a great diminution. In Berlin itself, the physicians have increased at the rate of 232·41 per cent., the surgeons only 44·90 per cent. In 1822, there was 1 midwife to every 50 births; in 1846, 1 to every 52—they having increased 12·54 per cent., while the population has increased 38·14 per cent.—*From an official paper in the Medicinische Zeitung*, 1849, No. 28.

On Poisoning by Crustacea. By Dr. Max. Simon.

Dr. Simon, after adverting to the various explanations of this occurrence which have been offered, each of which only accounts for a portion of the cases observed, states his belief, that in some cases at least the vulgar opinion, which attributes the poisonous effects to the ova of the animals, is not destitute of foundation. In many places where fish are prepared for food, these are systematically removed. He relates a case in point, in which a father, mother, son, and daughter, in good health, partook of a fine barbel, containing a large quantity of ova. Each of these persons ate largely of these, owing to their excellent flavour; and a guest who was present was the only person who ate of the fish, but not of the ova. The four individuals were seized in two hours with violent symptoms of poisoning, their guest continuing quite well. Constant vomiting, violent colic with purging, pallor and great anxiety of countenance, a small and frequent pulse, were the prominent symptoms. Demulcents and repose caused these to subside after several hours. The father had formerly eaten of similar food without ill effects. These cases occurring just as the cholera was making its appearance at Paris, were at first supposed to be due to its influence; but this idea was soon dismissed; for, as Dr. Simon observes, however violently cholera may exert its ravages in certain families, its attacks are always *successive*, never *simultaneous*. In regard to the management of these cases, they usually spontaneously recover, the poison itself acting as a violent emeto-cathartic, against which the vital powers in most cases react, in M. Recamier's words, "nobly." Sometimes, however, the struggle may be a prolonged one, or may even end fatally; and in such cases our resources are highly precarious.—*Bulletin de Thérapeutique*, tom. xxxvii, pp. 49-53.

Infanticide.—Retention of Life after long Exposure.

Dr. Miller, in a recent Number of Henke's 'Zeitschrift,' relates the particulars of the judicial investigation of several cases of infanticide, among which there is one of considerable interest. A peasant-woman delivered herself of a full-timed child, in the vicinity of a wood, 18th of August 1842, and fearing discovery, she concealed it in the hollow of a tree, thrusting its head forwards into the portion of the cavity which led towards the root, so as to exert considerable compression on the body, doubling it up, as it were. She had laid two stones of 3 or 4 lbs. weight upon its buttocks, and concealed the hole in the tree with a larger stone. By a lucky accident, a passer-by on the 21st heard its moaning, and withdrew it from its prison, covered all over with fir spiculæ and ants. There were found numerous contusions and lacerations upon different parts of the body. Its respiration at first very rapid, soon became more tranquil, and although so emaciated, it cried with some vigour, and very readily partook of food. Its temperature was normal. Any change of position called forth screams, due evidently to the pain from the various excoriations of the surface. It continued until the 25th to take nourishment, but the sores on the surface put on an ill character, and aphthæ forming in its mouth, it became more and more emaciated, and died on the 29th. On the examination of the body, a considerable softening of the mucous membrane of the stomach and alimentary canal was observed.

It seems almost incredible that life should have been prolonged during the exposure of this naked infant without food for three days and nights, the temperature of the air varying from 55° to 80° Fahr. Probably its close quarters within the tree protected it in some measure from cold; but the deprivation of food ought, according to the generally received opinions, to have proved fatal before the period of its having been discovered. Foderé states that danger to life occurs after 24 hours; and Most, that the infant can fast for from 1 to 2 days only; but all practitioners must be familiar with cases in which the child refuses the breast for a longer period than this, the privation being unaccompanied, however, then with the depressing operation of a low temperature, and hence less dangerous. (We once saw a premature infant exist for a whole month in a semi-inanimate state, without its ever being certain that any of the few spoonfuls of milk that could be retained in its mouth were ever swallowed at last.)—*Henke's Zeitschrift*, Suppl. No. for 1849, pp. 87-114.

On the Cessation of the Heart's Sounds as a Sign of Death. By M. Brachet.

In the essay to which the Institut recently decreed the Manni prize, M. Bouchut lays down the following proposition: "The absence of the sounds of the heart listened for during more than *one or two minutes*, is an immediate and *certain* sign of death." The commission, presided over by M. Rayer, entirely confirmed the pre-eminent value of this sign, but, to meet all objections, proposed that the period of *five* minutes should be fixed, that is, a space of time fifty times greater than the maximum of the interval (six to seven seconds) which one of their number had ascertained, from repeated observation at the bed of the dying, to prevail between the last pulsations of the heart. M. Brachet protests, in an article inserted in the 'Gazette Médicale de Lyon,' against the validity of this sign; and believes that its reception may lead to the loss of lives that otherwise might have been saved. M. Bouchut applies the law to new-born infants; but M. Brachet declares he has too frequently seen life restored after a quarter or half an hour's suspension of the heart's pulsations, to doubt but that this is an error. It may be said, he had not employed auscultation; but he has been for thirty years in the habit of resorting to a means of investigation which he considers as certain as the most delicate auscultation. This consists in passing one or two fingers under the costal cartilages of the left side, and carrying them between the liver and the diaphragm to the lower part of the pericardium. To a finger so placed, the slightest contraction betrays itself.

He relates a case which quite recently occurred to him, and in which *twenty minutes'* constant insufflation restored the child, although, during that time, no trace of pulsation could be heard or felt. During his thirty-three years' practice, he has met with more than twenty such cases, in which, for several minutes, sub-diaphragmatic exploration failed to detect any contraction of the heart. Cases illustrating the fallacy of the test are more rare among adults; but M. Brachet is in possession of one of recent occurrence. A man, ætat. 33, returned excessively fatigued from a journey, and, after having rested himself for two days, sent for M. Brachet on the third. He found him suffering from a sense of fatigue, some headache, some pain in the fauces during deglutition, and rather a hot skin, his pulse being 90, and tense. A mild expectant treatment was adopted during two days, without notable change; but on the third, while bathing his feet, he fell into a state of complete insensibility. There was no pulse, and the ear applied to the cardiac region for three minutes, could detect no impulse. The ear was applied again and again, and the finger not removed from the radial artery, yet, during at least *eight* minutes, the circulation revealed no signs of life. Boiling water was thrown on the limbs, and a few drops of sulphuric ether dropped into the nostrils, and a slight spasmodic movement was observed in the upper lip. Every possible external stimulant was now applied with vigour, and *twenty minutes* after the suspension of its action a slight contraction was perceived in the heart; its pulsations then became regular, and the patient opened his eyes.

The survival of the organic over the cerebral life may be manifested in other ways than by the contractions of the heart. We know that hemorrhages have occurred, sweating continued, and the beard sprouted, after the cessation of cerebral life; and from the fact of the capillary circulation sometimes thus continuing, M. Brachet believes we may discover a sign of death at least as important as that derived from auscultation of the heart's action. As long as this circulation continues, ganglionary death has not taken place, and there is a possibility of the organic life reacting on the suspended cerebral life, and restoring it. The means of acquiring a knowledge of whether the capillary circulation does thus continue, consists in pricking a part abounding in capillaries, as the lips or the tongue. A droplet of blood presents itself if the circulation persists, which is never the case when life is completely extinct. M. Brachet has often verified this fact in cases of asphyxia and apoplexy. For the same reason, as long as boiling water produces phlyctenæ, and mustard excites redness of the skin, life is not entirely extinct in the exhalents and capillaries.

Thus the two lives may be separately extinguished, the one surviving awhile the other, especially the ganglionary. The most enduring actions are the contractions of the heart, the capillary circulation, the secretion of the skin, and increase of the hairs; but no one of these phenomena are constant enough to be considered pathognomonic. This may be understood when we consider the manner in which the ganglionary life may abandon one part, to take refuge in, or even to concentrate itself in another.—*Gazette des Hôpitaux*, No. 135.

On the Injuries to which the various Parts of the Body are liable, with especial Reference to their Mortality. By Dr. Schneider.

This elaborate paper will be found of great interest to the medical legist, containing, as it does, an immense number of references to, and analyses of, the records of the severer injuries to which our frame is liable, many of which occurring in Germany have not been yet quoted in this country. It is almost a bibliographical manual upon the medico-legal bearings of the subject. We subjoin short accounts of one or two of the cases referred to.

1. *Luxation of the cervical vertebra.* Before narrating this, we may observe, that we were not prepared to find our learned neighbours citing the practice of the English fox-hunters as authorities. We have often heard of it, but never believed that any amount of luxation had really taken place. Dr. Schneider is, however, of a different opinion; for he says, "that a reduction of a *subluxation* is not impossible is undoubtedly proved by the practice of the English huntsmen, who have acquired a peculiar dexterity in the management of this class of accidents. They place the insensible person between their legs, and putting the fingers of one hand into the mouth so as to be able to move the head by the upper jaw, and applying the other hand to the nape, press back the displaced part by a gentle wriggling movement. For success to follow, however, this must be done quickly on the spot."

The possibility of the occurrence of a *complete luxation of the cervical vertebra without fracture* has been called into question; but a very remarkable case, here reprinted from Henke's 'Zeitschrift' (vol. xi), attests its reality. It occurred in the person of a strong, healthy peasant-woman, æt. 29, who was found lying dead upon a steep narrow staircase. On opening the cranium, the medulla oblongata was seen through the foramen magnum to be compressed by the displaced and moveable atlas. On turning the body on its face, and carefully dissecting through the nape, the muscles were found of a bluish-red colour, but not displaced. No rupture of ligaments, muscles, or vessels was visible; but a complete luxation of the atlas, without any fracture, had taken place, a space of four lines separating the displaced bone from the occiput. The odontoid process, and the other cervical vertebræ, were in their ordinary position; and the spinal marrow was in a normal state, except where compressed by the dislocated vertebra. The injury had been caused by the violence employed by a strong man, who, seizing the woman, while sleeping, by both ears, and implanting his elbows against her shoulders, drew her head upwards with all his might, and quickly twisted it round.

2. *Recovery after a wound of the aorta.* Dr. Heil communicated the following case to Henke's 'Zeitschrift' (vol. xxxiii). A powerful soldier, æt. 32, while upon furlough, was stabbed by an ordinary pocket-knife between the fifth and sixth ribs on the left side. A most profuse hemorrhage resulted, which continued several hours, and at last became arrested. The loss of blood, however, induced amaurosis, which resisting all treatment, he was discharged from the army. He now gave himself up to dissipated habits, and fell a victim to pneumonia about a year after the accident had happened. On examination, the cicatrix was found to have involved the pleura and corresponding portion of the lung; for this organ had been penetrated by the cutting instrument, which, directed upwards, had reached the *aorta ascendens*, in which was noticed a considerable aperture with jagged edges, and closed exactly by a thrombus, in connexion with the external cicatrix. Hemorrhage had thus been arrested by Nature, a coagulum having been formed during the application of external cold.

From a general review of the various injuries to which the body is liable, Dr. Schneider comes to the conclusion that the number of absolutely and *necessarily fatal* injuries is small, very bad wounds, in almost all parts of the body, sometimes becoming healed. Henke likewise states that the cases are very rare in which an injury can be pronounced absolutely fatal. There are many concurrent circumstances, also, which may modify the amount of danger, such as the state of health, age, &c.—*Vereinte Deutsche Zeitschrift für die Staats-Arzneikunde*, Band iv, pp. 267-366.

On Suicides in Mecklenburgh. By Dr. Spengler.

Suicides in Mecklenburgh-Schwerin, from 1788 *to* 1847. Dr. Spengler furnishes, from the official documents, an account of the number of suicides only, for no other particulars as regards age, sex, &c., seem to have been registered. By these, the number of suicides, in proportion to the population, is shown to be constantly and rapidly increasing. The inhabitants lead very comfortable lives as regards worldly possessions, but their intellectual condition is far inferior to their social position. Upon 228 square miles of territory there only reside 524,042 inhabitants, or 2298 to the square mile; and so fertile is the land, that even during the late famine years, the Mecklenburghers suffered little or nothing.

Notwithstanding this prosperity, not only are suicides upon the increase, but the proportion exceeds that found in countries possessed of a higher civilization, but of less material prosperity. Dividing the sixty years into sections, it is found that, from 1788 to 1806, there was one suicide in every 40,000 or 50,000 inhabitants; from 1806 to 1818, one in every 25,000; from 1818 to 1837, one in every 10,000 or 15,000; from 1837 to 1847, about one in 7000. In 1843, the numbers mounted up to their highest point, viz. one in 5540; but this was the only year they reached so high a figure. Hanging is by far the most common mode of committing suicide, then follows drowning, and then next, though at a great distance, and only since the French invasion in 1808, shooting.

Suicides in Mecklenburgh-Strelitz, 1828-47. This duchy contains a population of 94,500, i. e. 2615 inhabitants to the square mile. In the twenty years 1828-47, 334 suicides occurred, or 16·7 per annum; and taking the population for that period at a mean of 74,463, this gives us the high proportion of one in 4450 inhabitants. In this duchy also, the inhabitants of which are in a very similar social position to those of Mecklenburgh-Schwerin, the numbers of late years have notably increased. Thus, in 1829, there was about one suicide in 5000 inhabitants, in 1842-7, about one in 3000; and in 1847, one in 2754!

Suicides in the Principality of Ratzeburgh, 1806-47. The principality of Ratzeburgh constitutes a part of the last-mentioned duchy, and yet presents a remarkable difference in its proportion of suicides. During the thirty-seven years in which the numbers have been noted, between 1806 and 1847, twenty-seven suicides occurred or 0.73 per annum. Taking the population at a mean, for the period, of 14,000, we then obtain the highly favorable proportion of about one suicide in 19,000 inhabitants. The material condition of the inhabitants is much the same as in the two Mecklenburghs; with the important exception that, in the principality, the cultivation of the land is in a far more *free* and *independent position*. In all other respects they seem the same, for their minds are scarcely more cultivated; and indeed Casper has already shown that this has little effect in diminishing or increasing the number of suicides.

Suicides in the Austrian Empire, 1818-39. Dr. Spengler furnishes numerous tables of the suicides and population of the different portions of the Austrian empire from 1818 to 1839, the general result of which is, that a population gradually increasing from 17,453,422, in 1818, to 21,571,594 in 1839 (excluding, too, Hungary, Siebenburgen, and the Military Frontier), has furnished 465 suicides in the first-named year, and 774 in the last; and a total, for the whole series of years, of 12,581. Merely the numbers are given, however, without any details.—*Henke's Zeitschrift*, *Supplement for* 1849, pp. 265-298.

On the Statistics of Suicide in the Grand-Duchy of Baden, 1836-45.

By Dr. MAGG.

THIS is an official report, some of the particulars of which are interesting. The total number of suicides occurring in ten years in a population increasing during the period from 1,244,171 to 1,349,879, amounted to 1098, of which 891 occurred in *men*, 207 in *women*—the proportion being 1 in 13,824 inhabitants in 1836, and 1 in 10,886 in 1845, or a mean of 1 in 11,844. The proportion of *sexes* varied in the large towns; for we find 16 men to 4 women in Freiburg, 36 men to 6 women in Karlsruhe; 20 men to 3 women in Heidelberg; and 56 men to 22 women in Mannheim. Among the *students* at the two universities of Heidelberg and Freiburg, no suicide occurred during the ten years. In regard to the suicides occurring in the rural districts, the report furnishes the same conclusion as that announced by Demazy (1844) for the Département de la Sarthe, that the number increases inversely to the fertility of the soil. So, too, the same author's observation, that more suicides occur in the quarter from April to July, than in that from October to January, is borne out. Nearly all the casual or acute suicides were committed in the daytime, but the majority of the premeditated ones were so by night. The *ages* have been only recorded for three years. Of 357, 8 were below 18; 73 between 18 and 25; 35 between 25 and 30; 31 between 30 and 35; 46 between 35 and 40: 61 between 40 and 50; 58 between 50 and 60; 30 between 60 and 70; and 15 were 70 and upwards. The fact of *marriage* is only indicated in the numbers for one year (155), and these furnish some interesting conclusions. Of the suicides 89 were single, and 66 were married persons. The proportion of suicides is far less in those who have children (30·15), than in the childless, (69·21) or the single (74·15); but this depends much upon the age of the individuals; for while between the ages of 18 and 30, there was only 1 person having children committed suicide, compared to the 36 childless and 45 single persons, yet when we come to the ages from 40 to 50, we find the numbers for the married with children, the childless, and the single, respectively 10, 13, and 10, and those belonging to the space from 50 to 70 and above, to be 23, 15, and 10.

The following are the modes of death adopted:

	Men.	Women.	Total.
Drowning	114	76	190
Hanging	476	100	576
Shooting	205	4	209
Throat-cutting	67	7	74
Stabbing	10	1	11
Poisoning	17	4	21
Hemorrhage from opening of veins	1	3	4
" from cutting off left hand	0	1	1
Ripping up the belly	0	2	2
Precipitation	1	7	8
Suffocation	0	2	2
	891	207	1098

(This table is interesting and may be compared with that given in Vol. III. p. 547, of 4595 French suicides, and with other tables referring to our own country. The different modes of accomplishing death are so different in their proportions, that they would, in part, serve to illustrate a chapter on national manners.)

The *causes* were ascertainable only in 974 instances.

	Men.	Women.	Total.
Drunkenness	68	4	72
Diseased intellect	269	95	364
Bodily suffering	58	24	82
Disgust of life owing to domestic or pecuniary circumstances	278	31	309
Troubled conscience and fear of punishment	68	17	85
Sense of injured honour, or shame	29	13	42
Disappointed love	13	7	20
	783	191	974

Vereinte Deutsche Zeitschrift für die Staats-Arzneikunde, Band iv. pp. 245-265.

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CONTENTS OF No X

OF THE

BRITISH AND FOREIGN
MEDICO-CHIRURGICAL REVIEW.

APRIL, 1850.

PART FIRST.

Analytical and Critical Reviews.

PAGE

Art. I.—1. Medical Ethics; or a Code of Institutes and Precepts adapted to the Prefessional Conduct of Physicians and Surgeons. By the late Thomas Percival, M.D., F.R.S. Third Edition 285

2. Code of Ethics of the American Medical Association. (Reprinted from the American Edition) . . . . . . ib.
3. The Homœopathic Times. No. XII . . . . ib.
4. Medical Toogood-ism and Homœopathy. (Reprinted from the British Journal of Homœopathy, No. XXVIII) . . . . . ib.
5. The Homœopathic Journal . . . . . . ib.
6. The Zoist. A Journal of Cerebral Physiology and Mesmerism, and their Applications to Human Welfare . . . . . ib.
7. The Hygieist. A Monthly Publication, intended to establish Unity and Certainty in Medicine on Rational Principles . . . . ib.

Art. II.—1. The first Medical Report of the Hospital for Consumption and Diseases of the Chest. Presented to the Committee of Management by the Physicians of the Institution 311

2. Clinical Lectures on the Physical Diagnosis of Phthisis, as delivered at the Hospital for Consumption, &c. By Richard Payne Cotton, M.D., Assistant Physician to the Hospital . . . . . ib.

Art. III.—1. On Stricture of the Urethra and Fistula in Perineo. By James Syme, F.R.S.E., Professor of Clinical Surgery in the University of Edinburgh, &c. . 322

2. Stricture of the Urethra, its Pathology and Treatment; comprising Observations on the Curative Powers of the Potassa Fusa in that Disease; with Cases. By Robert Wade, F.R.C.S., Senior Surgeon to the Westminster General Dispensary, &c. &c. Second Edition, greatly enlarged . . ib.

Art. IV.—Mémoires de la Société de Chirurgie de Paris. Tom. I; Tom. II, Fasciculi I et II 330

Art. V.—Researches on the Development, Structure, and Diseases of the Teeth. By Alexander Nasmyth, F.L.S., F.G.S., &c. &c. 356

Art. VI.—Beschreibung sämmtlicher Kinderheilanstalten in Europa. Nebst einer Anleitung zur zweckmässigen Organisation von Kinder-krankeninstituten, mit Beiträgen zur Geschichte und Reform sämmtlicher Spitäler in Allgemeinen. Von Franz S. Hügel. Doktor der Medizin, Direktor der Kinderkranken-instituten in Wieden, &c. &c. 362

PAGE

ART. VII.—1. Case of Nottidge versus Ripley and Another, tried before the Lord Chief Baron and a Special Jury, June 23, 25, and 26, 1849. (Times Newspaper, June 25, 26, and 27, 1849) 372

2. A Remonstrance with the Lord Chief Baron, touching the Case of Nottidge versus Ripley. By JOHN CONOLLY, M.D., Fellow of the Royal College of Physicians, London, and Physician to the Middlesex Lunatic Asylum at Hanwell. Third Edition, revised and enlarged . . . ib.

3. Lunacy. Return to an Address of the Honourable the House of Commons, dated 28th July, 1849, for Copy of a Letter to the Lord Chancellor from the Commissioners in Lunacy, with reference to their Duties and Practice under the Act 8 and 9 Vict., cap. 105 . . . . . ib.

4. The Case of Miss Nottidge. Letters from Dr. STILWELL and Dr. MARSHALL HALL. (Lancet, July 21, 1849.) . . . . . ib.

5. Sheriff Court, Dumfries.—Brieve of Furiosity, Russell versus Russell . ib

6. Commission of Lunacy on Mr. Vicars, of Liverpool, August 21 and 22, 1849. (Sun Newspaper, August 22, 1849.) . . . . . ib.

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ART. VIII.—Illustrations of the Effects of Disease and Injury of the Bones; with Descriptive and Explanatory Statements. By EDWARD STANLEY, F.R.S., President of the Royal College of Surgeons of England, and Surgeon to St. Bartholomew's Hospital 413

ART. IX.—The Physiognomy of Diseases. By GEORGE CORFE, M.D., Resident Medical Officer at the Middlesex Hospital, &c. &c. 420

ART. X.—Views of Nature: or Contemplations on the Sublime Phenomena of Creation; with Scientific Illustrations. By ALEXANDER VON HUMBOLDT. Translated from the German by E. C. OTTÉ and HENRY G. BOHN. With a Frontispiece, from a Sketch by the Author, a Fac-simile of his Handwriting, and a comprehensive Index 427

ART. IX.—Island undersögt fra lægevidenskabeligt Synspunct. Af. P. A. SCHLEISNER, M.D., Meldem af the kongelige medecinske Selskab i Kjöbenhavn . . 456

ART. XII.—Medico-Chirurgical Transactions. Vol. XXXII—1849 . . 465

ART. XIII.—On the Operation for Strangulated Hernia. By HENRY HANCOCK, F.R.C.S.E., President of the Medical Society of London, Surgeon and Lecturer on Surgery, Charing Cross Hospital, &c. 482

ART. XIV.—Report on a general Scheme for Extramural Sepulture. By the General Board of Health. Presented to both Houses of Parliament by Command of her Majesty 492

ART. XV.—The Hunterian Oration for 1850. By FREDERIC C. SKEY, F.R.S., F.R.C.S., Assistant-Surgeon to St. Bartholomew's Hospital, &c. &c. . . 499

ART. XVI.—Evening Thoughts. By a Physician. 509

Bibliographical Notices.

Art. I.—A Manual of the British Marine Algæ: containing Generic and Specific Descriptions of all the known British Species of Sea-Weeds. With Plates, to illustrate all the Genera. By William Henry Harvey, M.D., M.R.I.A., Keeper of the Herbarium of the University of Dublin, and Professor of Botany to the Dublin Society 513

Art. II.—Annual Report of the Progress of Chemistry, and the Allied Sciences, Physics, Mineralogy, and Geology. By Justus Liebig, M.D., and H. Kopp. Edited by A. W. Hoffman, PH.D., and W. De la Rue. Parts I—III . 514

Art. III.—Pathology of the Human Eye. By John Dalrymple, F.R.C.S. Fascic. IV. 515

2. Surgical Anatomy. By Joseph Maclise, Surgeon. Fascic. V. . . ib

Art. IV.—The Poor Artist; or Seven Eye-sights and One Object . . 517

Art. V.—Sanitary Economics; or, our Medical Charities as they are, and as they ought to be. By Alexander P. Stewart, M.D., Physician to the St. Pancras Royal General Dispensary 518

Art. VI.—Surgical Anatomy of the Arteries, and Descriptive Anatomy of the Heart. By the late Valentine Flood, M.D. Second Edition, by John Hatch Power, M.D. 519

Art. VII.—Annals of Anatomy and Physiology. Conducted by John Goodsir, F.R.SS. L. and E., F.R.C.S. ED. Professor of Anatomy in the University of Edinburgh. No. I, Feb. 1850 529

Art. VIII.—Medical Portrait Gallery 521

Art. IX.—Rational Medicine; a Vindication. The Address delivered on the Opening of the New School of Medicine, Surgeons' Hall, Edinburgh, November 6, 1849. With an Appendix. By Alexander Wood, M.D., Fellow and Member of the Council of the Royal College of Physicians, &c. 522

Art. X.—On Stammering and its Treatment. By Bacc. Med. Oxon . . . 523

Art. XI.—The London and Provincial Medical Directory for 1850 . . 524

Art. XII.—Underwood's Medical Appointment Book, Midwifery Register, Diary and Almanack, for 1850 . . . . ib.

Periscope.

Further Experiments on the Influence of the Electro-Magnetic Current on Cadaveric Rigidity. By M. Brown-Sequard 525

Researches on the Physiology of the Medulla Oblongata. By M. Brown-Sequard 526

Motion of Liquids in Narrow Tubes . . . . ib.

On Coagulation of the Blood. By M. Marchal, de Calvi 527

Experimental Researches on the Contractility of the Spleen 528

On the Existence of Two New Kinds of Anatomical Elements in the Medullary Canals of Bones. By M. Ch. Robin . . . . ib.

Rhythmical Movements of the Respiratory and Locomotive Muscles after Death. By M. Brown-Sequard 529

On the Emission of Urine, as observed in an Individual suffering from Ectopia of the Bladder. By Dr. Parmeggiani . . . . . . ib.

PAGE
On a Means of Measuring Degrees of Anæsthesia and Hyperæsthesia. By M. Brown-Sequard 530
Elasticity and Cohesion of the Tissues of the Human Body . . . . . ib.
On the Diffusion of Liquids. By Professor Graham . . . . . ib.
On Gelatine as an Alimentary Substance. By M. Berard 532
On the Differences in the Energy of Reflex Action, according to Species and to Age, in the Five Classes of Vertebrated Animals. By M. Brown-Sequard . 533
Case of Smallpox without obvious Contagion. By Dr. Banks, of Laurenceville, Ill. ib.
On the Treatment of Ague by a Single Dose of Quinine. By Dr. C. Pfeufer, of Heidelberg 534
On a Case of the Spontaneous Reproduction of Cowpock. By Dr. Rupprecht . ib.
On Chlorotic Tinnitus. By Dr. Froriep . . . . ib.
On Mucous or Catarrhal Pneumonia in Children. By M. Duclos . . 535
A Peculiar Furuncular Epidemic. By Dr. Clemens . . . . . ib.
Clinical Convictions respecting Ascites, expressed in the form of Propositions. By Dr. Dubini 536
Anatomico-Pathological Appearances of the Internal Ear in Typhus. By Dr. Passavant, Frankfort 538
On a New Form of Mental Disease. By Dr. Luther Bell . . . 539
On Femoral Hernia. By M. Malgaigne 540
On Phlebitis. By Dr. Novellis 543
On Glaucoma. By Dr. Fario . . . . ib.
Extracting Foreign Bodies from the Nostrils. By Dr. Homans . . 544
Case of Abscess of the Brain. Incision made into the Lateral Ventricle. By Dr. Detmold . . . . ib.
A remarkable Case of Relapses in Cancer 545
On the Treatment of apparent Death from Chloroform. By MM. Ricord and Escallier 546
On Dressing Wounds and Ulcers with Charcoal. By Dr. Newmann . . ib.
On Hemorrhage from the Umbilicus. By Dr. Bowditch 520
Case of a Negro Woman who gave birth to Twins of different Colours. By Dr. Carter, Virginia 548
On a Funis of remarkable Length. By Dr. Neugebauer . . . ib.
On the Prophylactic Treatment of Habitual Disposition to Abortion . By Dr. Metsch ib.
Remarkable Case of Retention of Urine after Delivery. By Dr. Malgaigne . 549
Discussion at the French Academy of Medicine upon Engorgements of the Uterus . ib.
Case of Extra- and Intra-Uterine Pregnancy existing simultaneously. By Dr. Craghead 553
On Puerperal Fever. By Dr. Gamberini . . . . ib.
On the Effects of the Alkaline Mineral Waters of Vichy on the Urine. By Dr. Durand-Fardel 555
Citrate of Magnesia and Iron 556
Gargle in Nervous Cough . . . . ib.
On the Action of Magnesia on the Economy. By M. Dorvault . . . ib.
On Aqua Oxymuriatica in Local Inflammations. By Dr. Cramer . . 557
On the Medicinal Employment of Electricity By Dr. Terzi . . . 558
On the Hydrostatic Test. By Dr. Caspar 560
Case of Poisoning by Concentrated Sulphuric Acid. By Dr. Rapp. . . ib.
On the Employment of Olive Oil in Viper-bites. By Dr. Dusourd . . 561

Books received for Review 562
Index 563

THE

BRITISH AND FOREIGN

MEDICO-CHIRURGICAL REVIEW.

APRIL, 1850.

PART FIRST.

Analytical and Critical Reviews.

Art. I.

1. *Medical Ethics; or a Code of Institutes and precepts adapted to the Professional Conduct of Physicians and Surgeons.* By the late Thomas Percival, m.d., f.r.s. Third Edition.—*Oxford*, 1849. 12mo.
2. *Code of Ethics of the American Medical Association.* (Reprinted from the American Edition.)—*Oxford*, 1849. Small 12mo, pp. 36.
3. *The Homœopathic Times.* No. XII.
4. *Medical Toogood-ism and Homœopathy.* (Reprinted from the British Journal of Homœopathy, No. XXVIII.)
5. *The Homœopathic Journal.*
6. *The Zeist. A Journal of Cerebral Physiology and Mesmerism, and their Applications to Human Welfare.*
7. *The Hygiest. A Monthly Publication, intended to establish Unity and Certainty in Medicine on rational Principles.*

I. The last sentence of the above list haunts our mental ears like the pleasant reminiscence of a charming cantatrice. *Unity and certainty in medicine on rational principles!*—consummation devoutly to be wished, we say; and we fall into a pleasing reverie, believing that we had seen the advent of the true reformer; that a medical prophet had arisen at last. But who is he? Truly, "Messrs. Morison!"

The orthodox cultivation of the Medical Sciences, and the orthodox practice of the Art of Healing, are not without their antagonists; nor, indeed, have ever been. The proposition is almost a truism; but the method with which these antagonisms may be vanquished, or at least rendered harmless, and the spirit in which they should be opposed, are little understood by the profession, if we found our opinion on the mode in which some late controversies with empirics and quacks have been conducted. The republication, under the valuable editorship of Dr. Greenhill, of several short treatises and essays on Medical Ethics, has recalled our attention to a subject, we formerly touched upon, namely, the ethical relations of the true practitioner to the various forms of empiricism and quackery (vide vol. II, p. 27), and the prevalent spirit of intolerance which leads to consequences derogatory to the dignity, and injurious to the material interests, of the profession. We might add, that the period of time which has elapsed since we penned the pages just referred to, has afforded ample proof of the truth of some remarks then made, as to the benefits which empirics would reap from the pains of martyrdom inflicted on them by the orthodox practitioner.

Before addressing ourselves to our present object, we must thank Dr. Greenhill for the seasonable republication of the ethical works, of which he has undertaken the editorship. Their convenient form and trifling cost recommend them to the notice of every one who wishes to advance the morals of the profession; and we think that every practitioner and student should add the whole series to his library, or, if not the whole, at least the American code of medical ethics, and Dr. Percival's work. The latter, although capable of much improvement by revision and excision, is still a good text-book on the subject, and has afforded almost the *ipsissima verba* of the American code. In reference to this point, and the origin of the code itself, we quote the note of the American editor:

> "Dr. Hays, in reporting the following code of medical ethics to the National Medical Convention, stated that justice required some explanatory remarks should accompany it.
>
> "The members of the Convention, he observed, would not fail to recognise in parts of it expressions with which they were familiar. On examining a great number of codes of ethics adopted by different societies in the United States, it was found that they were all based on that by Dr. Percival, and that the phrases of this writer were preserved, to a considerable extent, in all of them. Believing that language so often examined and adopted, must possess the greatest of merits for such a document as the present, clearness and precision, and having no ambition for the honours of authorship, the committee which prepared this code have followed a similar course, and have carefully preserved the words of Percival wherever they convey the precepts it is wished to inculcate. A few of the sections are in the words of the late Dr. Rush, and one or two sentences are from other writers; . . . . . . for the language of many sections and for the arrangement of the whole, the committee must be held exclusively responsible."

We should be glad to see anauthorised British code of Medical Ethics, and in the American code a good model is afforded; but we hardly know where to turn for a body sufficiently dignified and influential to undertake its construction. The medical corporations might redeem their character by co-operating in so excellent a work; but their material interests occupy their attention so exclusively, and the moral and technical relations of the profession have hitherto been so utterly neglected by them, that such an effort on their part is hardly to be expected. Still we may hope something from the more numerous admissions of junior Fellows into the College of Physicians of London of late years; and we know of no subject with which they could so gracefully and so usefully occupy public attention as this.

II. The list of publications at the head of our article will afford our readers some idea of the extent to which the various forms of heterodox or regular or empirical practice are carried in this country. Homœopathy, in possession of a weekly and a quarterly journal, takes the lead in activity and probably in success; and has even eclipsed the Morisonian system. The talent displayed by the followers of Hahnemann in their literature is quite equal to their zeal; and we feel satisfied that they can supply a greater number of effective writers, than the practicers of all the other forms of empiricism and quackery taken together.

The relations which the heterodox systems of medicine and medical art bear to true science and art, must be investigated, before we can determine the ethical questions arising out of them. Hitherto a great error has been committed in not sufficiently discriminating the heterodox systems from each other; for although the dogmas of Hahnemann, Priestnitz, or Morison, may be alike empirical, yet they are so in very different degrees. We will therefore pass in review the general characteristics of the leading heterodox systems of medicine, and then compare them with those of the orthodox; and this we shall do as impartially and as accurately as our ability and our space will permit, details being introduced where most appropriate.

The first and most special characteristic of all medical heresies and quackeries is, that they address themselves to the satisfaction of a desire which may be termed instinctive, and which therefore is as imperative as it is universal. So soon as a man feels pain or suffers from disease he seeks a *specific* remedy for that disease; and so universal is this desire, that although orthodox medical science and art have gradually ceased to seek for specifics, or even to entertain the hope of discovering them,—partly from ample experience as to the futility of such attempts, partly because an improved system of philosophy has demonstrated the impossibility of success,—yet practitioners of the orthodox school are daily to be found, who beast a cure for this disease or the other in absolute forgetfulness of the great principle just stated. Nor are even the wisest and best restrained by a full knowledge of it, from this common failing of humanity. Like all instincts, this desire for a specific remedy often wars with the conclusions of the intellect; while a practice founded on it is alike agreeable to the patient and to the practitioner. To the one, if there be faith in the specific remedy or method, it administers the most cheering and effectual of remedies—hope; to the other, it saves the trouble of thought. Hence we may readily understand how many may enthusiastically receive and practice a system of empiricism independently of all sordid motives; and, if the perceptive faculties predominate over the reasoning, how often wisely-educated and even talented persons may be carried away by a false system of healing.

The use of specific remedies or methods may therefore be connected very closely with true medical philosophy, and may indeed arise out of it; or it may be nothing more than a senseless stupid system of quackery. In the former case we should be inclined to term the practice rather heretical and empirical than charlatanic; and discuss it more in sorrow than in anger. In any case, the question cannot be ethically discussed, without bearing in mind the wide difference in degree of error, and of divergence from the orthodox system, which the heterodox systems present in this respect. Amongst the ancients, the system of cure practised by the Methodists, and amongst the moderns the systems of Brown and Broussais, although recognised by many as orthodox, were but systems of empiricism: to these we may add the system of Hahnemann. A few brief remarks will suffice to satisfy our readers on this point.

Hahnemann's true practitioner of the healing art as described in his 'Organon,' is he who clearly perceives what is to be cured, what in medicine is curative, what medicine is applicable to the case in hand, in what doses and in what manner it should be administered. For each and every group of symptoms, there is a remedy in the homœpathic system. But let one of the writers of the school speak of it.

> "The homœpathist is bound to consider the *totality of the symptoms*, and to choose a remedy which covers as many as possible of these symptoms. If it should so occur, that any single remedy covers all the symptoms present, that is assuredly the homœopathic specific for that malady." (Homœopathic Times, vol. i, p. 165.)

In this way *specifics* for numerous diseases have been professedly discovered by this class of empirics, amongst which we may mention hydrophobia.

Hydropathy is in marked contrast with homœopathy in this—that it has but *one specific*, and that is water, used externally and taken internally, according to various methods. The *true* hydropathist gives no medicine whatever; but we believe a genuine example of the species is rare, at least in England, as, either a few simple medicines are administered or permitted, or, what is more usual, homœopathy is combined with it.

Mesmeric medicine is a much less consistent and coherent system than either of the preceding. In its simpler form, it maintains that the production of a certain condition of the body, termed mesmeric, will cure all diseases; or, in other words, they may be cured by mesmerism. But there is another modification of it, which uses mesmerism to discover specific remedies, rather than apply the mesmeric influence as a direct means of cure. In this modification, a mesmerised individual is enabled, not only to observe the actual condition of the various viscera of a sick individual, placed in "rapport" with him or her, and to describe their diseases pathologically, but is inspired with a knowledge of the means to be used for their cure. Consequently, the declarations of the clairvoyant are estimated by the initiated rather as revelations than ordinary expressions of opinion, and faith in the efficacy of the specific remedies recommended is increased accordingly. Mesmeric empiricism, in fact, approximates to the empiricism of religious quacks; inasmuch as there is the same love of the mysterious, and the same blind credulity required in the one as the other. The cures effected by relics and by prayers to the saints of the Roman calendar, or by the prayers of some one gifted person, as Prince Hohenlohe, or of the leaders or elders of Protestant sects, are examples of religious empiricism. The Mormonites are at the present moment pre-eminent for their use of faith and prayer, not only to recover the sick, but even to raise the dead. Well-attested histories prove the curative efficacy of these specifics, and thousands and tens of thousands have yielded their assent to evidence which they could not controvert.

We take the Morisonian quackery as the the type of a numerous genus, in which the desire for specifics is met by the offer of one medicinal remedy for every disease. In this genus, the materia medica is reduced to its simplest element, and the mind is spared all effort of even speculation as to the symptoms of diseases or the curative powers of other agents. The specifics, whether Morison's or Holloway's have a universal efficacy and application;—whatever may be the symptoms, "the pills" are effective.

Finally, another group of quackeries comprises all those agents which have a specific action on *some one disease* or group of diseases; and includes all special specifics, from Pulmonic Wafers or Gout Pills, to St. John Long's Liniment and Worm-cakes. This group anastomoses with homœopathy, by presenting directly and empirically, what homœpathy offers to the credulous indirectly and under the appearance of a system of doctrines.

Another characteristic which these medical heresies and quackeries have in common, is their constant *appeal to experience* in proof of their doctrines. The controversial writings of the homœopathists are full of such appeals. We subjoin an example:

> "Every aberration from the normal state of health has its specific remedy, if we knew it. Hahnemann's followers are bound to follow out his design. Polypharmacy, and medicines given merely in accordance with theory, are rejected by us. Ours is the medicine of experience; call us, then, if you like, in the classical sense of the word, *empirics*. Call homœopathy, if you choose, this medicine of experience." (Medical Toogood-ism, p. 29.)

Thus the writer, starting with the hypothesis, that every aberration from the normal state of health has its specific remedy, "*if we knew it*," bases his practice on that experience, in which, according to his own phraseology, both the system and the principle are alike defective; for it is manifest that his proposition cannot be pronounced to be true as a *result of experience*, until *the* specific remedy for *every* aberration has been actually discovered and brought into practice. Hahnemann defined medicine as being "a science of experience. Its business is to oppose diseases by remedies. The knowledge of disease, the knowledge of remedies, and the knowledge of their application constitute medicine." The word remedy is here used in the sense of a special agent,—an agent that will "cover the symptoms of a disease,"—and this adaptation of the remedy or specific drug can only be discovered by experience. But experience amply informs us, that, in many cases, the removal of the cause of disease will of itself be sufficiently remedial; the cause being removed, the effects cease; consequently no specific is needed in cases of this kind. Homœopathy appeals to experience in support of its practice as well as its principles. When fallacies, or supposed fallacies, are pointed out in the principles, the answer is,—whether they be true or false, WE CURE; and we cure diseases when you "allopathists" are powerless.

> "While we write, the Asiatic cholera is in England, Scotland, and Ireland, fierce in some places, comparatively mild in others. It is avowedly confessed, that the resources of allopathy cannot meet this disease; the mortality is great under any practice, but very much less under homœopathic treatment than under allopathic. We put it to our allopathic brethren, how they can fairly refuse to test our remedies in such a disease." (Medical Toogood-ism, p. 29.)

Experience is equally appealed to, as to the efficacy of homœopathy in "covering the symptoms" of the disease termed hydrophobia, and curing it Such an illustration of the happy success of Hahnemannism has been lately afforded near Halifax. It is true that Dr. Inglis and other orthodox practitioners, after a careful examination of the case, pronounced it to be spurious; and the Editor of the 'Homœopathic Times' hardly ventures to assert that it was a true example of this formidable disease; yet still, in his comments on the newspaper controversy which grew out of the affair he appeals to the results of experience, just as if the case had been truly hydrophobic; and thus we have an idea of the kind of experience advanced, the cure being of a "reported" case.

> "The case is as follows: Four men were bitten by a rabid dog in or near Halifax; two of them were attacked with hydrophobia some time after, and died. One of them had the advantage of Dr. Inglis's care, who, it seems, used the most strenuous exertions to keep him alive, but could not. *A third of these four men* .... Hopkinson, by name, was reported to have been attacked with hydrophobia. Be it understood, this man, Hopkinson, was one of the four men who had been bitten by the mad dog. Mr Ramsbotham was called in to attend him, and HE RECOVERED UNDER HOMŒOPATHIC TREATMENT. *Hinc illæ lachrymæ.* Hence all the work. Had he died, as the man under allopathic treatment had done, we never should have heard one word more of the matter; but because homœopathy cured him, and that in the teeth of allopathy, all this storm is raised." (Homœopathic Times, vol. i, p. 198.)

We need hardly say, that throughout this whole paragraph, there is an assumption of the sole point in dispute. No one appears to deny that the man was bitten, or that he manifested certain symptoms of disease; or that those symptoms ceased after the administration of the globules, or whatever form of homœopathic remedy was prescribed. The point denied is, that the symptoms so manifested were such as result from the action of the hydrophobic virus; and on this head we are required to receive the assertion of the homœopathic curer implicitly. Every practitioner at all acquainted with the subject must be well aware, however, that spurious cases of hydrophobia are by no means uncommon; that the records of medical art abound with examples of spurious cure, very like this one so triumphantly boasted of by the disciples of Hahnemann; and that, if the case had been in the hands of an orthodox practitioner, and its genuineness apparently established by other witnesses, the well known fallacy of past experience would cast a doubt upon the scientific value of the single case. That the homœopathist—*consuetus jurare in verba magistri*—should have implicit faith in the efficacy of his system, is only, in fact, a necessary consequence of his faith in Hahnemann, who had himself implicit faith in himself, his practice, and his dogmas. The following is an example:

> "Then, after having sufficiently examined the disease which it is proposed to treat, that is to say, noted all the appreciable phenomena in the order of their succession, and having especially marked the most important symptoms, it only remains to oppose to this malady a medicinal agent capable of itself exciting all the symptoms which characterise the disease, or at least the greater part of the severest, and the most important and peculiar, and one that can excite them in the same succession as they occurred in the natural disease, in order to attain a certain, speedy, and permanent cure. The results of this method, so conformable to nature, is [are] infallible; it is, without exception, so certain, and its rapidity so much surpasses all expectation, that no other method of treating diseases is at all to compare with it."*

In another passage, Hahnemann asserts, that "one, two, or at the most three, medicines suffice to annihilate the most inveterate disease. If no cure takes place, it is we who are to blame; the fault is neither with nature nor the disease."†

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* The Medicine of Experience. By Samuel Hahnemann. Being Chap. iii of "An Introduction to the Study of Homœopathy." Edited by Drs. Drysdale and Russell. p. 81.

† Op. cit., p. 99.

The *experience* of hydropathy is not less confidently and earnestly appealed to by the disciples of Priestnitz, as affording more than ample proof of the sufficiency of his system and method for the cure of disease, to the exclusion of all others. In illustration of this, we make an extract from the first book on the subject that comes to our hand:

"The question now arises, what complaints are curable by Mr. Priestnitz's treatment? On this subject, I shall quote the opinion of Rausse, author of an excellent work on hydropathy, which has passed through several editions. He says, 'it is impossible for a man to die of an acute disease, who has sufficient strength left him to allow of water producing its reaction, and who, from the commencement of his disease, is treated by hydropathy. Every one who is not acquainted with the water-cure, will naturally doubt its wonderful power; and every doctor, when he reflects upon the number of patients labouring under acute diseases, who have perished under his hands, will, no doubt, laugh loudly enough at the new water system.' 'Nevertheless,' says this author, 'I am not disposed to advance a doctrine which may be put down, and I, therefore, here publicly make known, that I am ready by deeds, as well as with words, to prove all that I have stated as to the healing power of water.'"*

Hydropathy is the homœopathic antidote to homœopathy: *similia similibus curantur* is not only singularly applicable, but the dose of the remedial agent found in hydropathy is infinitesimally small in its amount, although powerful from its greater dilution. Here is a direct blow at Hahnemannism:

"To think of curing disease with the poison commonly called physic [medicines] must, to the reflective mind, appear paradoxical, because it is impossible to bring the physic to bear upon the dispersed and deeply-hidden diseased matter; and even if this could be done, it is quite impossible, as every chemist knows, that the morbid matter and physic should mutually dissolve each other into nothing. The consequence of such treatment with physic is, that to the old evil, a new stimulus is added, weak or strong, according to the dose and quality."†

Cholera was said to be treated by the great hydropathist much more successfully than by the orthodox. Mr. Claridge informs us that he treated seventeen cases of cholera successively, and *cured them all* in a few days; thus achieving greater triumphs than even homœopathy.

Not less triumphant is the *experience* of the mesmerist, as to the curative agency of his art. We take a chance number of the 'Zoist,' and, running down the table of contents, find the following "cures"—of vomiting; of blindness of twenty-six years' duration, from opacity of the cornea; of "intense tooth-ache;" of deafness; of "a severe case of epilepsy." On the cover, we have the following advertisement:

"FIFTH EDITION. Just published, (with permission).............

"MESMERIC CURE OF TRUE CANCER. A case of the triumph of Mesmerism over this distressing disease, hitherto considered incurable; the genuineness of which, notwithstanding the hostility of the medical profession to mesmerism, remains unimpeached. Extracted from the 'Zoist,' No. xxiii.

"WITH INTRODUCTORY REMARKS BY DR. ENGLEDUE.

'A friend to Mesmerism, anxious that Dr. Elliotson's triumph over the above formidable disease by means of mesmeric agency should obtain the utmost possible publicity, has caused it to be reprinted in the above cheap form, and solicits the co-operation of the friends of truth and suffering humanity in its circulation. By enclosing a post-office order, or the amount in postage stamps .... any number of copies will be forwarded."

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* Hydropathy, or the Cold-Water Cure, &c. By R. T. Claridge, Esq., p. 13.
† Op. cit., p. 90.

"Oh, what a falling off is here!" Time was when Dr. Elliotson would have abhorred such a puff as this, as the foulest sin against professional honour and etiquette,—as the worst stain on his character,—and why not now? The cure of cancer by mesmerism cannot warrant so sad an aberration from what is universally considered by the profession to be ethically right.

The "Hygieist" is just as earnest in *his* appeal to experience, as the homœopathist, the hydropathist, or the mesmerist; and he has not a whit less amount of it to offer. We think an apology is due to our readers for polluting our pages with specimens of the grossest quackery; our excuse is, that our lesson would be imperfect without it. The ranks of homœopathy, hydropathy, and Mesmerism contain men who have had a professional education, and have attained to the *summi honores* of medicine; and it is not without a hope that we can recall them to the duty which they owe to the profession they have injured, and the science they have abandoned, that we place the experience and dogmas of the Morisonian school in juxtaposition with their own. The comparison may be suggestive of beneficial doubts and of wholesome yearnings. We take the following extract from a stray number of the 'Hygieist:'

> "So far as the Hygiean medicines are concerned, the public have the experience of twenty years, during which time the Vegetable Universal Medicines have been used with the happiest results, by thousands and thousands throughout the world, in all sorts of cases, by all sorts of persons, and in all kinds of doses, varying from 2, 5, to 20, and even 50 pills; thus showing at once that they cannot possibly be more poisonous than *bread:* it is, in short, because they are so completely medicinal and different from doctors' medicines (i. e. poisons), that they are UNIVERSAL! Everybody can use them with the greatest safety, without the advice of any one, because their action (aperient and cleansing) is strictly in accordance with the great laws of nature. Their action upon the human body is precisely what drainage is to the land—they purify the whole system by at once striking at the root of all diseases and thus restore to health. This is called the *Hygiean system*, into the truth of which doctors have been repeatedly invited to enter, by an examination of the cures daily effected throughout the country. They, however, refuse to enter into such inquiry, well knowing," &c.

The slightest consideration of the subject must lead to this conclusion,—that the bare statement of the results of experience cannot be accepted as the guide to the practice of medicine; if this were so, which of the *four* new and exclusively infallible systems must the inquirer adopt? All appealing with equal force to experience, he must necessarily investigate the nature of the experience advanced to establish the truth of each of the systems, and then make his selection; but such an investigation demands a knowledge (*scientia*) of general principles; these, however, the heresies and quackeries of the day do not afford.

We do not wish it to be understood that the empirical systems of the age do not indulge in hypothetical dogmas, or that they appeal exclusively to experience; on the contrary, they are in all respects as the art and science of medicine were in their infancy, that is to say, they consist of equal parts of fallacious experience and gratuitous hypothesis. The proposition as regards the hypothesis of quackeries, admits of easy proof, and will hardly be denied by their warmest supporters. We need not therefore dwell much on this point. The most usual hypothesis is that there is a morbid humour in the body, which can only be expelled by a specific remedy. Morison evacuates the humours by purgation, Priestnitz by water; or if the hypothesis be of a more recondite character, then Elliotson cures by the "mesmeric fluid," or the disciple of Hahnemann "covers the symptoms" by a "preternaturally irritating" infinitesimal globule or drop.

Another point in which these empirical systems agree, is that their doctrines and practice appeal to the vanity and love of the marvellous inherent in human nature. It is not without more or less reluctance, that man submits implictly to the judgment of his fellow; the great desire to think for himself and act independently of another, is felt as strongly when he experiences the necessity of medical treatment, as at any other time. Hence any system which ministers at once to his vanity and his love of freedom—which at once assures him he is able to treat himself, and supplies the method and the means on a level with his untaught intellect,—is received gladly. But the way to even a smattering of medical knowledge is by no means easy; the road to sufficient knowledge and skill, long and difficult; hence the founder of an empirical system is necessarily placed in immediate and direct antagonism with orthodox science and art, and he is literally obliged to ignore both. For this reason the Morisonian quacks speak boldly out, and with great tact, for their votaries are amongst the most illiterate. Medicinal agents they pronounce to be poisons; the "organic theory" (or orthodox method of treatment) to be "completely wrong, and *a curse to mankind*, for it enslaves both body and mind." Nothing can be more characteristic than the following extract from a 'Biographical Sketch of James Morison, the Hygieist;' the italics are not our own:

> "It is one of the prominent features of the Hygiean system, *that every man should be his own doctor*. Medical advice is, in short, quackery—because there is but one disease, namely impurity of the blood, and therefore but one treatment, viz. proper vegetable purgation."

The lowest forms of quackery necessarily present this peculiarity of empirical systems illustrated above, in its most monstrous and ridiculous form. Hydropathy, Mesmerism, and Homœopathy address themselves to the more educated classes. The first mentioned is for the most part only within the reach of the affluent; the two others attract the more inquiring and the more thoughtful. Wearing gracefully the borrowed plumes of science, and exercising the judgment and the intellect, they readily entrap enthusiastic minds whose early training has been imperfect, or who, from a peculiarity of mental constitution (a large self-esteem), recognise no difficulties in the practice of the most difficult and uncertain of all arts. But even persons of this o'er vaulting temper would stagger in their course, if they found that a knowledge of a complete cycle of sciences is necessary to a knowledge of the science of medicine; and that varied and delicate aids to observation are indispensable to the advancement and practice of the art. Hence, hydropathy, mesmerism, and homœopathy, in common with all other forms of empiricism, ignore *more* or *less* the use of the stethoscope, the microscope, the urinometer, the speculum the sound; hence also they cultivate no accessory sciences, unless it be for parade and show, for their principles are sufficient of themselves, and have no connexion with other branches of human knowledge. These empirical systems are therefore admirably adapted to the wants of the educated classes; but as homœopathy by a multiplication of specifics gives the greater occasion for thought, and shocks less the common sense of mankind, the 'Practical companion to Homœopathic Family Practice,' or the 'Homœopathic Family Assistant,' is more popular with the higher classes, and homœopathy more extensively patronised and practised by them, than either of the other heresies.

The *love of the marvellous* is appealed to (as we have already observed) by the advocates of all the various quackeries and empiricisms. The "balm of Gilead" owed much of its popularity to a text of scripture. Morison also adopts a biblical origin for his pathology, and maintains that the cause of disease in man, which purgation cleanses away, first entered into and infected the blood of Adam and Eve at the fall. Hahnemann insinuated that his theory was a direct revelation from God, to save mankind from the miseries inflicted by the orthodox practitioners of medicine. In the introduction to his 'Organon,' he observes:

> "It was high time for the wise and benevolent Creator and Preserver of mankind to put a stop to this abomination, to command a cessation of these tortures, and to reveal a healing art, the very opposite of this; which should not waste the vital juices and powers by emetics, perennial scouring out of the bowels, diaphoretics, salivation, &c.; nor shed the life's blood, nor torment and weaken with painful appliances; nor in place of curing patients suffering from diseases, render them incurable by the addition of new, chronic, medicinal maladies, by the means of the long-continued use of wrong, powerful medicines of unknown properties; nor yoke the horse behind the cart by giving strong palliatives, according to the old favorite maxim, *contraria contrariis curantur;* nor, in short, instead of lending the patient aid, to guide him in the way to death, as is done by the merciless routine practitioner; but which, on the contrary, should spare the patient's strength as much as possible, and should rapidly and mildly effect an unalloyed and permanent cure by means of smaller doses of simple medicine, well considered and selected according to their proved effects by the only therapeutical law conformable to nature—*similia similibus curantur.* It was high time that he should permit this discovery of Homœopathy. By observation and reflection, *I* discovered that, in opposition, to the old allopathic method, the true, the proper, the best mode of treatment is contained in the maxim: *to effect a mild, rapid, certain, and permanent cure, choose in every case of disease a medicine which can itself produce an affection similar to that sought to be cured.* Hitherto no one has ever *taught* this homœopathic method of cure—no one has *practiced* it, but the truth is only to be found in this method, as *I* can prove it to be," &c.

There are educated homœopathic physicians—men who have had at least the opportunity of orthodox study—we ask these if they do not blush to read such a tirade as this?—if they do not feel ashamed that a man so imbued with a spirit of pharisaical fanaticism and detraction as the writer of it *must* have been imbued—should be called "GREAT and GOOD!" We appeal especially to the homœopathic writer of the following passage, as to this point:

> "The glories of medicine—of allopathic medicine—stand recorded in Time's book, whose leaves are centuries, whose characters are the doings and sufferings of mankind; universal conscience and universal gratitude bear witness to its beneficial working, from the remotest ages down to the present generation. With feelings of reverence we look to the past; tradition and authority are both venerable, though neither infallible in our eyes."*

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* An Introduction to the Study of Homœopathy. Edited by J. J. Drysdale, M.D. Edin., and J Rutherford Russell, M.D. Edin., Editors of the British Journal of Homœopath' p. 16.

Such is the description of a system by a *disciple*, of which the *master* asserts, that it "knows not what else to do than to attack the sufferer with drugs that do nothing but torture them, waste their strength and fluids, and shorten lives!" And the author of these atrocious calumnies, not content with calumniating, like a Morison, what is confessedly beneficent and glorious, claims for himself the authority of an inspired Prophet, and for his dogmas the reverence due to Divinely-revealed Truth. The hygieists sin less.

So little, indeed, is Hahnemann entitled to the character of a prophet, that we utterly deny his claim to be considered a philosopher. His dogma of *similia similibus curantur* is but another phase of the therapeutical systems which have originated from time to time in a thaumaturgical or superstitious meditation on final causes in relation to healing. A century or two before he flourished, the doctrine of "signatures" occupied the place in medicine which homœopathy now assumes; and remedies were sought for and determined according to a plan, which had its origin in Divine Providence. The Creator, it was assumed, had so marked or stamped certain plants and medicinal agents, that they presented outwardly or visibly the indications of the diseases or diseased organs, for which they were specifics; these were their *signaturæ*. Hence the proper specific for a disease was learned and determined by ascertaining what plants in their visual properties were similar or analogous to the predominating symptoms of diseases, or to the organs diseased—*Similia similibus curantur.* To this doctrine we owe some popular names of plants, as "eyebright" *Euphrasia*), "liverwort" (*Marchantia*), &c.—We think an apology is necessary to our readers for occupying our pages with these details; they are necessary, however, for the proof of our assertion; and we should have left our notice of homœopathy imperfect, if we had not thus briefly indicated its real origin. The clue to the train of thought on final causes in relation to healing, which led Hahnemann to his dogmas, may be easily discovered in his works, and is equally traceable in those of his disciples. Thus the eloquent writer of the essay last quoted asks:

> "Is it unphilosophical to suppose that amongst the beautiful, providential, all-infolding laws of nature, there may be one applicable to the cure of disease? Is it philosophical to assume, in the teeth of so many provisions made by the All-wise for man, that there can be no greater, no safer provision made for the mitigation of the manifold distempers incident to his bodily constitution, than what medicine, as a conjectural science can afford?"*

Such a law the doctrine of signatures supplied. Thus does the spirit of thaumaturgy—the wild, untrained love of inquiry into the operations of the Divine mind,—warp and confuse the ideas of men who really seek but for truth, and lead them into the domains of the mysterious, deeper and deeper still, until reason yields to faith, and a philosophical scepticism as to the accuracy of our observations and the correctness of our premises capitulates to a trusting credulity.

The *credulousness* and the fulness of the *faith* which medical heretics and quacks display in regard to their doctrines and practices, is another striking general peculiarity; in this respect their systems are entirely analogous, *mutatis mutandis*, to religious heresies and fanaticisms. Doubtless, both forms of aberration from the reasonable and the true are dependent upon the same mental defects. Hence it is, that quacks find their readiest harvest and their most trusting followers among religious enthusiasts, or among sects who yield up their reason to faith. Hence it is, too, that so frequently the same individual patronises the various heresies and quackeries as they arise. What value can generally be placed upon the observations of individuals of this class? How can we trust their capacity to observe, with so powerful a bias towards their belief? Who but an individual utterly subjected to a wild predominant idea, could have recorded one thousand and ninety symptoms, that is to say, *series* of phenomena, evidencing corresponding changes in the organism, as *produced* by—oyster-shells! Much stress is laid by the Hahnemannic writers on the necessity and value of accurate and extended observations; but when an observer makes such an assertion as this, it is a hypothesis he states—not a fact or a deduction; for, to establish the true action of oyster-shells, according to the method of Hahnemann, the action of every other agent should be excluded. If the infinitesimal theory as to the potency of minute doses be correct, such an exclusion is, however, simply impossible; for the motes visible only in a sunbeam may exercise, when inhaled by "the susceptible," a very powerful medicinal influence; the chemical elements of coal-dust, inhaled when the fire is stirred, may excite a perfect chaos of phenomena: while the slightest unphilosophical inaccuracy or uncleanness in the butcher, flour-dealer, milkman, or cook, may invalidate a month's "provings." Yet the homœopathist believes his scientific observations on infinitesimal doses to be possible under such conditions as these!

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* Op. cit., p. 9.

Not less striking is the credulity of the mesmerist, and of other and lower forms of empirics—for we verily believe Morison had faith in his own system. The April number of the 'Zoist' contains the conclusion of a case of cataleptic insanity treated mesmerically, at Brighton, by a Mr. Parsons. This individual undertakes the treatment of a case of insanity, as he terms it, continues that treatment for a lengthened period, and gravely records all the aberrant and mesmeric phenomena he excites, or imagines he excites; and then naively confesses, on a certain date, some months subsequently to his commencing the treatment, that that was the first time he saw his patient in his waking sane state. The youth who acted as his patient prescribed mesmerically for himself, predicted his fits, imbibed mesmerised water, *&c.* Mr. Parsons observes:

> "A day or two ago I asked him to find out some method by which he could prevent that extreme susceptibility to my presence, as I wished sometimes to see him as other people saw him; and to-day he announced to me that he thought copper worn by him would have that effect.
>
> "Nov. 19. He had another bad fit at 10.—Nov. 20. I told him yesterday to keep two pennies in his waistcoat-pocket till I came; and to-day, when I entered the room, he arose, quite awake, advanced to me and took my hand, saying, 'good morning, Sir, how do you do?' This was the first time I had ever seen him in his waking sane state; and consequently the first time he had seen me. I asked him this question, and he replied, 'No, Sir, I have never seen you before that I remember.' "*

Such is the style of observation and investigation to which the medical profession are required to submit their opinions and judgments—and such is the nature of the facts adduced. What man, with any pretension to a philosophical training, or even with an ordinary share of common sense, would occupy his thoughts with matters so puerile and absurd?

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* The Zoist, vol. vii, p. 13.

We have, also, to note the *polemical bitterness* of medical heretics and quacks, and the unmitigated *animosity* they display—in their writings—towards orthodoxy. We have already noted that Hahnemann and Morison agree to characterise legitimate medicine and its practisers in very similar terms—both plainly denouncing them as THE CURSE OF MANKIND; "inflicting tortures, poisoning, guiding the patient to death," &c. This animosity is the direct and necessary result of the antagonism which we have already noticed as in operation between scientific and empirical medicine. The two cannot coexist, and, as the latter has the less viability, it must destroy or be destroyed. Hence the tactics of attack and defence—the feints—the stratagems—of the extensive controversial literature of quackery. Each form has its journal, weekly, monthly, or quarterly; and its ready writers, labouring to enlist the sympathies and countenance of the public, or to persuade the orthodox practitioner to give it welcome; and great is the triumph when a convert is gained. Each form, too, anticipates, or professes to anticipate, a glorious victory at no distant date; each has its martyrs and heroes doing battle valiantly, and dying for the truth,—if need be. In fact Harvey and Jenner are stock illustrations and exemplars of the mesmerists and homœopathists, persecuted for the truth. We hardly know a more amusing series of writings than the polemical essays of medical heretics. The assumed moral grandeur the mock heroism they display; the cordiality with which they abuse the orthodox practitioner and repudiate his doctrines; and the evident wish, manifested at the same time, for the euthanasia of adoption by the former, and the mergence of their doctrines into the latter; are in ludicrous contrast. Laymen and ladies enter warmly, too, into the contest; for example, we find Dr. Hawkins, Dr. Mayo, and Mr. Wakley well set-down by a "female mesmerist," who thus, in the 'Zoist' (April, 1849), opens her battery upon the trio of sinners:

To Dr. Elliston.

"SIR,—*It is time*, indeed, that the grossly insulting language of Dr. Francis Hawkins, and Mr. Wakley, should not only engage the attention, but receive a CHECK FROM FEMALE MESMERISTS THEMSELVES, who ought especially to desire '*to uphold the character of English society* for its *purity and morality;*' and it is this desire which prompts me to venture a few remarks in reply to the scandalous aspersions of these gentlemen. We are all certain that what is *truth must stand*, while *error fails and falsehood falls* as an evil, envious, ill-directed arrow shot by *cowardice* itself. Yet while these latter feelings are so predominant among *some* medical men, and their malignancy is not confined to their professional brethren, it is necessary that female mesmerists should indignantly and firmly refute this charge of immorality.............Must not any lady whose case is recorded in the 'Zoist,' or any woman as a mesmerist, on reading the remarks of Dr. Hawkins, consider them as an insult to herself? I would ask, what greater opprobrium could be publicly affixed to the character of a woman (especially an educated one) than that offered by him in his *Harveian Oration;* and in strict justice he ought to be compelled to retract and apologise for these expressions.

"Dr. Elliotson, does not that respect which a gentleman ought to entertain for a lady's character, and that politeness with which one gentleman should treat another, render such an apology an imperative duty," &c.

We heartily wish Miss Elizabeth——, of Maidstone, success in her

duello with the trio aforesaid; but we hope she will especially "punish" Dr. Hawkins, for his want of taste, tact, and prudence, in referring to the subject of quackery at all in his 'Harveian Oration'. Harvey and quackery have nothing in common; and the Fellows of the College of Physicians ought to know by this time, that to act as a medical policeman is no part of their duty, and never should have been.

It would not be fair to say, that *all* the controversial literature of the medical heresies and quackeries is characterised by bad taste or folly; or even is not justifiable. Their logic and their illustrations may be bad or ridiculously inapplicable; as, for example, when an analogy is drawn between the action of an inappreciable quantity of the poison of smallpox and of charcoal or other medicinal agent—forgetting, in fact, that the poison of smallpox has the property of *infinitesimal increase* in quantity; but bad logic or false analogies do not merit scurrilous abuse; and if they are accompanied by a manifest desire to attain a knowledge of the truth, they merit confutation or notice in terms becoming a scholar and a gentleman. The essay of Dr. Samuel Brown, 'On the theory of Small Doses,' is a model for the controversialist; and we venture to say, that if Hahnemann and his disciples had always so writ and so reasoned, the modicum of truth to be found in homœopathy would long ago have been incorporated with general medicine. Dr. Brown feels that doctrines must be considered ethically as well as technically. The following passages are especially worthy consideration:

> "It is the insensible medicines the profession fights against; and with good reason, till they be rendered welcome to the mind, by some theoretical light and likelihood thrown around the exhibition of them. What reasonable man will give trial to so momentous a scheme, as a new way of dealing with the dying, unless it be first commended to his understanding, as being full of verisimilitude? Some homœopathists, with the mock-heroic sense of persecution common among the best of innovaters, as well as among the worst, are fond of indulging in philippics against the prejudices of the old schoolmen, as if ever any one was even consciously the slave of his foregone conclusions. The truth, on the contrary, is, that there is a vast amount of candour latent among the members of the medical profession, as well as in every other body of men. Once render a plan of action conceivable to them, and they will be the last to grudge it a jury, as fearless as intelligent......
>
> Let the disciples of Hahnemann be content to be sneered at, and let them bend every energy to excogitate a congruous and easily comprehensible doctrine of insensible doses.....Not that the want of apparent consistency, with everything else that is known of the operations of nature, would be a decisive argument against invisible medicines or against any new practice in any other art. By no means; but, in a matter of so grave importance, one must demand some rational initiative before one can be warranted in abandoning a patient to a method of treatment, as startling in enunciation as it is novel in detail."*

We repeat, if Hahnemann had acted upon the sentiments so plainly and so excellently uttered by his disciple, the *good* of his investigations would have been eliminated without the *evil.*

And this brings us to the last general characteristic of medical heresies and quackeries which we shall here notice: they all appeal from the judgment of the educated profession to that of the uneducated public. This fault is an *essential* element of the pure quackeries; and being part of their nature, is hardly to be blamed. The uneducated practisers of homœopathy, hydropathy, and mesmerism may also be excused seeking refuge in the ignorance, love of novelty, and love of the mysterious, with which society at large is imbued. But what shall we say of those who having been educated in the orthodox schools, have so little *esprit de corps*, so little regard for the advancement of truth, so little self-respect, as to take a course which must inevitably cause them to be *ipso facto* excommunicate? Why should Dr. Elliotson—granting the facts and principles of mesmerism to be true,—why should such a man herd with "female mesmerists," and with advertising quacks, who profess to use mesmerism as a successful panacea? Why should *he* sanction the practice of medicine by uneducated persons, even if a new and powerful remedial agent have been discovered?

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*An Introduction to the Study of Homœopathy, p. 156 et seq.

These remarks apply also to those physicians who have abandoned orthodox medicine for the "water-cure," or for homœopathy; but in a less degree to the latter. Its system of numerous specifics demands a certain amount of knowledge for the due selection of the appropriate specific; and the tone of feeling and of morals is set higher amongst the homœopathic empirics than the others; so that an uneducated interloper is soon taught the propriety and necessity of prosecuting a course of medical study, and obtaining some public testimonial or other of fitness to practise the art of medicine. Besides, the homœopathist ambitiously desires to subvert the current system of medical science and practice, that he may substitute his own; and he knows well that all his efforts to this end will be utterly useless, if uneducated pastry-cooks, chemists, &c. fill up the ranks. Nevertheless, the diplomatised homœopathist must still be charged with the great crime of appealing, by means of lay "associations," &c., to a non-professional jury, and continually vaunting to the public that he is in the possession of a newer and better method of cure than his brethren. He may not herd openly with "untaught knaves" or enthusiastic weak-minded laymen; he may not openly sanction the public or private practice of his craft by amateurs, male or female, though many do; but he seeks to obtain lay patronage and support by means which, if adopted by an orthodox practitioner, would involve his condemnation for quackery, and his expulsion from the ranks. It is altogether a fallacy to suppose that the opposition to homœopathy is merely an opposition to its doctrines, or arises from jealousy of its success. Doctrines as hypothetical, and claiming attention as imperatively, have often had their day in the profession, without involving their believers in martyrdom. Stahl was not the less eminent and esteemed because of his peculiar views; nor Rasori or Tommasini for their Brownian practice. It is probable that some, if not many, homœopathic physicians are unconscious of the breach of medical ethics they have committed; blinded by interest or by enthusiasm, they willingly imagine themselves martyrs to a bold and honest defence of what they think true, rather than criminals, condemned by the public opinion of their peers for a gross contempt of professional morals. Their use of the term "allopath," as a designation for the legitimate practitioner, deludes them too, perhaps, into the belief that they are the true and proper opponents of current doctrines and practice. This might be granted, if legitimate medicine was based on, or even recognised, any such dogma as *contraria contrariis curantur*. The users of that term, however, must know that it is altogether inapplicable, as they employ it.

Indeed Hahnemann punned on the phrase with an attempt at malicious wit. In the introduction to his Organon, he observes:

> "The old school knows not what else to do with patients suffering from chronic disease, than to attack the sufferers with drugs that do nothing but torture them, waste their strength, and fluids, and shorten their lives! Can it be said to save while it destroys? Does it deserve any other name than that of a *mischievous* (non-healing) *art?* It acts, *lege artis*, in the most inappropriate manner, and it does, it would almost seem purposely, ἄλλοια, that is to say, the very opposite of what it should do. Can it be any longer tolerated?"*

After this, the application of the term allopath to the legitimate practitioner must be considered as sheer impertinence; for it imputes to him either the *mala praxis* asserted in the above quotation, or the practical adoption of a dogma which he altogether repudiates.

III. We will now change our canvass, and sketch orthodox medicine as a science and an art. But we will first recapitulate the peculiarities of the heterodox, so that the lights and shadows of our delineations may be contrasted.—Heterodox, heretical, or empirical medicine, then, professedly implies specific remedies—one remedy, or many—for disease; it appeals exclusively to a brief experience as an infallible test, to the exclusion of science, in support of its dogmas and practice; it assumes for them exclusively a perfect excellence; it finds its best auxiliaries in the vanity, credulity, superstition, or love of the marvellous, inherent in human nature; totally disregarding the traditions and accumulated knowledge and experience of ages, it denounces the systems of healing founded thereon, in terms of unqualified condemnation and with the utmost bitterness; and finally, while it sanctions the practice of medicine by persons not duly educated in the science and art, it also appeals to the same class of persons to judge between it and orthodox medicine.

In all these points, Orthodox Medicine is at issue with empiricism. It recognises no specifics, in the strict meaning of the term, but only remedies which are more generally applicable to certain diseases or morbid conditions than to others. It is eminently a science and art of experience, it is true; but in no other is the fallacy of mere experience so fully recognised and admitted. The sentiment of Hippocrates has been cordially re-echoed for two thousand years by every true medical practitioner. "Life is short, and the art long; the occasion fleeting; experience fallacious; and judgment difficult." Why should the philosophical physician rely on unassisted and uncorrected experience, when every day illustrates its fallacy? If that apparently simple and uncomplicated phenomenon—the rising, course, and setting of the sun—be one in which our unaided judgment and best organ of sense lead us astray, how can we rely upon our unassisted faculties, when we have to observe the complicated and multitudinous phenomena of life? Hence the true physician has, from time immemorial, acted on the principle of the great father of modern philosophy: "*Nec manus nuda, nec intellectus sibi permissus multum valet. Instrumentis et auxiliis res perficitur; quibus opus est, non minus ad intellectum quam ad manum.*"† Holding such opinions, can the conscientious practitioner accept the so-called facts and experience of Hahnemann's *Materia Medica Pura?* or occupy his precious time with even an attempt to verify them? The reiterated experience of ages amply demonstrates the fallacy of such facts and experience, independently of their incongruity with a sound method of observation; so that the rejection by the profession of the *principles* of homœopathy is unavoidable, unless, indeed, we be prepared to accept the validity of all other heterodox systems of medicine, professedly based, like it, on infallible experience.

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* Homœopathic Times, vol. i, p. 167.

† De Interpretatione Naturæ, aph. 2.

The orthodox practitioner is not only sceptical as to the value of mere experience, and accepts no system of art based on it alone, but he seeks to acquire that knowledge of principles (*scientia*), by which alone experience can be corrected and rendered available to art. He inquires into the nature of those derangements of functions and changes in structure which constitute disease; and seeks to classify and arrange them. But here again, a further knowledge of principles is found necessary; for how can he say what constitutes disease, until he first establishes what is health? Hence a knowledge of physiology, in all its departments, is requisite; and a *cycle* of sciences is at once cultivated in their relations to health and disease. But empirical medicine requires no such cycle, for it sees no fallacy in experience; and therefore needs no science to correct it. We do not deny that a *parade* of science is made by the empirics; but where are the results? What has homœopathy added to physiology and pathology? What has mesmerism done for neurology? We have the uncorrected results of fallacious experience—nothing more.

Perhaps in no point does orthodox medicine differ so widely from empirical art, as in this successful cultivation of the various sciences indirectly connected only with medicine, and this concentration of the results of those inquiries upon the study and cure of disease. It would be a mere affectation of modesty to deny the immense progress made in the medical sciences during the last half-century, and the consequent correction of fallacious experience in the art, on the one hand, and the addition of new and better experience on the other. Looking at the subject in this point of view, one cannot conceal a smile at the overweaning vanity of any man or class of men, who think it a light thing to treat the established system of medicine with contempt, and to expect its speedy overthrow as a result of their efforts.

But while orthodox medicine is sceptical as to the results of experience, it is also sceptical as to the results of science; for this is necessarily imperfect. Perhaps the phenomena of life can never be so subjected to the dominion of the human intellect, and comprehended so fully by the philosopher, as are others in nature which would at first appear more beyond his grasp. It would appear as if a knowledge of the infinitely great and simple in nature were much more attainable than of the infinitely minute and complicated; and that man is better able to comprehend the illimitable in space and number, than the nature of the smallest, simplest organism. The true practitioner therefore accepts empirical experience in the cure of disease, whenever it is so offered as to satisfy his judgment that it is not fallacious; for, to defer the adoption of a useful and practical method of healing, until a science, necessarily imperfect, demonstrates its fitness, would be a crime against medical ethics. The practitioner is bound to advance the *science* as much as in him lies; but his first duty is to *practise the art* with the greatest success. This catholicity of faith and practice is in direct opposition to the exclusiveness and dogmatism of medical heresies and quackeries; true medicine will adopt the therapeutic experience of even a Morison, if proved, however it may repel his absurd hypotheses or so-called science; and will weigh the results of homœopathic curative experience, however, it may dissent from a belief in the efficacy of infinitesimal doses, or in the dogma of *similia similibus curantur*. Such an estimate has, indeed, been long going on, and we trust will be extended.

The elements of the science and art of healing are not to be acquired easily and hastily; a practical knowledge of vital phenomena, whether in regard to the morbid or healthy condition, can only be attained by those educated by long and careful study and observation. Hence, science—("the knowledge of many, orderly and methodically arranged so as to be attainable by one"), training, and practical tact are necessary to estimate and apply experience rightly. For this reason it is a fundamental canon in medical ethics, that the art shall be practised solely by persons duly educated; and that all experimental results in therapeutics, and all new theories and methods of cure, shall be brought before the tribunal of professional opinion for adjudication as to their merits, and that they shall be sifted, examined, canvassed by the profession only, through its educated members or by its literature; for the profession only is competent to decide. If, then, an incompetent tribunal be appealed to, the appellant offends against this fundamental law, and he is necessarily adjudged recusant. Independently of the necessity that, if we would have a true decision on a professional point, capable of being decided solely by specially-educated men, the profession should be the judges, it is manifest that an appeal to the lay public involves various circumstances which are in their nature fatal to all sound inquiry. The ordinary prejudices for or against a method or doctrine, are complicated with motives arising from pride, selfishness, and avarice. The temptation to delude and deceive a professionally unlettered and uneducated jury, commingles with, and very often overweighs, the desire to establish the truth; for the immediate reward, if the attempt be successful, in public confidence; and its results, wealth and social estimation, against an honour or a fame which will perhaps only be posthumous. Consequently, it is of the most vital importance to the interests of truth, of the art, and of mankind, that no such appeal be made to a lay public on questions involving points of professional science or experience.

We need hardly add, that all appeals to the credulity, vanity, curiosity, or love of the marvellous of society, are incompatible with scientific controversy, and consequently with scientific progress. No physiologist would or could investigate mesmerism as an itinerant public lecturer; no true physician would ever vaunt the superiority of his principles or his practice, in journals intended for popular circulation. All such methods are utterly incompatible with the dignity of medicine. And however he might differ in opinion with his brethren, the right-minded practitioner would hardly think himself justified in adopting a course of vilification and abuse, as a means of convincing the judgment either of the lay public or of his professional brethren.

IV. We hope our readers are now in a position to understand the two methods of vanquishing these heresies and quackeries of medicine, or at least of rendering them harmless; and to comprehend the true spirit with which they should be met. The ethical relations of the practitioner to empiricism and quackery have a threefold aspect: first, towards the public; secondly, towards the profession; thirdly, towards the systems and their supporters. The relations to the public carry with them more or less consideration of the others; for, in whatever way the matter be viewed, the good, as well of society as of individuals, must be our chief aim.

The suppression of quackery and empiricism has been and is thought generally, in the profession, to be the easiest possible task. Invoke the aid of the secular arm; let the quack be fined and imprisoned, and, if possible, transported; for his trade is a trading with suffering and death. Such is the short and easy method proposed by many. We apprehend that this cry for the magisterial suppression of quackery, combined, as it has usually been, with a reference to the material or pecuniary interests of the profession, and a demand for their legislative protection, has been of very serious detriment to its dignity, character, and usefulness. In the first place, it is a great political error, displaying much ignorance of first principles. No punishment, however cruel—no secular repression, however vigorous—ever sufficed to control mankind in matters of opinion, except by the total suppression of all inquiry whatever into the forbidden topic; and the instances in which this has succeeded are rare. If the secular arm has failed to control the people in matters of religion, and to obtain uniformity in faith, doctrines, and ceremonies, is it reasonable to suppose that it can attain such uniformity in the doctrines and practice of medicine, with its uncertain principles, its fallacious experience, its imperfect development? Uniformity is attainable in proportion as doctrines are true and principles established; the Christian sects of Europe are far less widely separated from each other than the pagan sects of Asia. Uniformity in medicine is a possibility, but it is distant indeed. But, it may be asked, would you allow quackery to be rampant? and, where it now destroys its thousands, permit it to destroy its tens of thousands? Such will be the unthinking question of many; as if there were no other method of suppressing quackery than by the physical force. To these we would recommend—firstly, a study of the history of persecution; then, of the progress of opinion.

We freely and fearlessly assert, that the attempts made by the profession, from time to time, to put down quackery, whether by vilification or more direct prosecution, have done more to encourage and promote it, than any efforts whatever on the part of the practisers. We have, in fact, given the quacks the vantage-ground of moral dignity; the sole circumstance of being thought a worthy object of attack by a dignified profession has elevated them in the public eye to the level of the profession; they have gained their spurs of knighthood by the mere acts of challenge and combat—and of a combat in which they had much to gain and nothing to lose. The slightest persecution or vilification has been skilfully transmuted into a crown of martyrdom; and they have stood before the public as the valiant, enduring champions of truth or of political freedom, and the victims of a professional rancour, excited solely by a regard for pecuniary interests. We subjoin a homœopathic example:

"The homœopathic system threatens far more grievous detriment to all classes of practitioners, than vaccination could ever have done. The greater part of the emoluments of medical men of the old school arises from the imperfections of their practice. Whether they have the wisdom, as many, especially the more experienced of them profess, to 'do very little, and let Nature take her own way,' or with the impatience of youth and inexperience, deal pill and potion right and left, cut, burn, blister, bleed, and purge, in abundant pennyworth for their fees, their patients lie long on their hands for the most part, and the attendance is profitable in proportion. ....Homœopathy, by curing recent diseases more promptly, and besides curing more certainly, demanding less frequent visits to those labouring under the more protracted, ...cannot fail to make deep inroads into professional incomes, and to lessen very much the number of practitioners that shall be needed to meet the altered circumstances of the public," &c.*

We need not, we think, add more examples; we will only say that they might be multiplied *ad nauseam;* as the kind of argument and defence of the above, is in fact the stereotyped method of charlatanic controversy.

It is the more lamentable that the profession should demand protection against quacks from the legislature, when it is, we believe, a fact now fully admitted by those who have looked at the subject in all its bearings, that *every form of empiricism advances the material or pecuniary interests of the profession,* and that this (paradoxical as it may appear) is the true and the most powerful argument for secular interference. Quacks, next to a defective system of public and private hygiene, constitute the best friends of the profession; so that all those timid souls who fear the rival dispensing druggist or homœopathist, may be at ease as to their pecuniary interests, provided they remain true to themselves.

We advise, then, that quackery and quacks be let alone. Society must protect itself from these as from other nuisances. It may be an act of great self-denial; it was in our own case; for a friend attacked by cerebral congestion, previously always relieved by a free bleeding, snored his life away in the hands of a homœopathic physician. Now an inquest might readily have been had in this case, and the system fully exposed; but perhaps the result would have been for the empiric a crown of martyrdom, and increased gains—for society, a further loss of life; whereas, let alone, with the fact of the man dying for the want of bleeding, plainly stated to his friends, and in society generally, as a result of the system, without vilification or abuse of the practiser, he was more likely to sink into merited neglect.

The doctrines as well as practices of empirics should also be allowed to pass without public notice or imputation, and for the same reasons. Controversy before the public has the same effect as persecution; and should there even be aught of value in them, the tribunal appealed to by the empiric is not that by which the questions in litigation can be decided. If the empirical opponent be duly authorized to practise, let him be required to bring the matter before his peers; if not so authorized, let him be treated with dignified silence. If an opinion be *asked* by laymen, it may be given, but with an absence of all obloquy or abuse.

The treatment of the empirical yet duly authorized practitioner, involves more questions of ethics, than that of the thorough quack. We apprehend that every man duly authorized has the undoubted moral right to practise his art to the best of his judgment; and if he decide to practice it homœopathically, or hydropathically, or mesmerically, we do not see on what grounds he should be prevented. If once the principle be conceded, that the medical mind or hand shall be fettered or bound by one or more set of ideas or range of methods, freedom of inquiry will be checked, and the progress of art arrested. We fear that many authorized practitioners not duly impressed with the gravity and dignity of their vocation, and the sacredness of human life, remain content with the information which enables them to pass "the Hall" or "the College;" and sink into careless routinists. Such, we contend, are no less culpable than the empirical but duly authorized practitioner—nay, are more culpable,—and yet we know of no rule of ethics which could be brought to bear upon their conduct, except the great rule of doing as they would be done by. Neither of these classes should be encouraged, but neither can be excommunicated from professional intercourse unless guilty of other faults. If either, however, *profess to the public* that they practice according to a special mode, and, attacking the orthodox system of medicine, vilify it, and praise themselves, then it is right to treat the offender as excommunicate. We apprehend the following articles in the American Code of Medical Ethics are strictly applicable to the case of physicians and surgeons who have presented themselves before the public as professed homœopathic, mesmeric, or hydropathic practitioners:

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* Defence of Hahnemann and his Doctrines, including an Exposure of Dr. Alexander Wood's Homœopathy Unmasked, p. 22.

> "Every individual on entering the profession, as he becomes thereby entitled to all its privileges and immunities, incurs an obligation to exert his best abilities to maintain its dignity and honour, to exalt its standing, and to extend the bounds of its usefulness. He should, therefore, observe strictly such laws as are instituted for the government of its members; should avoid all contumelious and sarcastic remarks relative to the faculty as a body; and while by unwearied diligence he resorts to every honorable means of enriching the science, he should entertain a due respect for his seniors, who have by their labours brought it to the elevated condition in which he finds it." (§ i, chap. ii.)

We add a second, as applicable to various modes in which the practitioners referred to *systematically* offend.

> "It is derogatory to the dignity of the profession to resort to public advertisements, or private cards, or hand-bills, inviting the attention of individuals affected with particular diseases, publicly offering advice and medicine to the poor gratis, or promising radical cures; or to publish cases and operations in the daily prints, or suffer such publications to be made: to invite laymen to be present at operations: to boast of cures and remedies; to adduce certificates of skill and success, or to perform any other similar acts. These are the ordinary practices of empirics, and are highly reprehensible in a regular physician."

Let us bring the conduct of Dr. Elliotson to this standard; and it is soon made manifest how recklessly and how constantly he has sinned against sound professional ethics, from the time that he invited laymen to meet him at the North London Hospital. If that fallen man had undertaken the investigation of mesmeric phenomena with a due regard to the dignity of his profession, and in a spirit of sound philosophy, medicine might by this time have been enriched with not only a new and most valuable curative agent, but with large additions to one of its most defective departments—the physiology of the cerebrum; and Dr. Elliotson would have been honoured and esteemed. But Dr. Elliotson preferred the empirical course; he invited laymen to be present at his manipulations; he has published, or suffered cases to be published, in the newspapers and in journals intended for popular circulation; he has boasted of his cures, —but we need not prolong this painful matter; he has indeed a beacon set on high to warn his brethren against the treacherous quicksands that have engulphed him, and against a course which has been even more disastrous to science than to himself. To his conduct may be traced, in a great degree, the seizure of mesmerism in England by quacks, jugglers, &c., and its proscription by true science.

There is no definite punishment mentioned in the greater number of the 'articles' in the Code of Ethics we have quoted; one exception is, however, remarkable, and we will notice it specially as strictly applicable to the question under consideration—the excommunication of the empirical but duly authorized practitioner. It may be found in the article headed "of the duties of physicians in regard to consultation."

> "A regular medical education furnishes the only presumptive evidence of professional abilities and acquirements, and ought to be the only acknowledged right of an individual to the exercise and honours of his profession . . . . . . But no one can be considered as a regular practitioner, or a fit associate in consultation, whose practice is based on an exclusive dogma, to the rejection of the accumulated experience of the profession, and of the aids actually furnished by anatomy, physiology, pathology, and organic chemistry."

We subjoin no comments, as our delineation of the peculiar characteristics of medical heresies and quackeries perfectly accords with this article. It is of more importance that the profession should carry out the sentence of excommunication in every case, so that it shall not be made to appear as a persecution or proscription of *opinions*, rather than a punishment of unprofessional conduct. We believe incalculable injury has been inflicted on the profession—its scientific advancement arrested, its dignity wounded, its material interests marred,—by the hasty and intemperate conduct adopted towards empirics. Their conduct, their doctrines, and their facts, have been anathematized in a breath; and hence the profession has appeared to the public as infinitely more regardless of truth than of its wounded prejudices or conventional notions; as being more mindful of the vilification of quacks, than of the acquisition of new powers of healing. The proceedings in reference to Mr. Blake, the pistorian homœopath, constitute a case in point. Mr. Blake, a pastry-cook practising homœopathy, finds it necessary to become duly qualified in some way or other. What connexion he found between homœopathy and surgery we know not; but aided by a culpable laxity on the part of the authorities of the London College of Surgeons, he succeeded in a fraudulent attempt to obtain their diploma. His proceedings met with the disapprobation of his brethren; and their treatment of him is discussed in the public prints, in one of which, the 'Bridgewater Times,' we find the following in the prominent place of a "leader."

> "Mr. Blake practises homœopathy. Homœopathy is a rising science; it is year by year increasing in public estimation and confidence. It may be based on true or false principles, the profession care not which; but they do care for the fact of the homœopathic practitioner obtaining the confidence of their patients, and they therefore try to put him down. Though one of themselves they wont consort with him, wont meet him in consultation; he is tabooed by them, and so are those of

the profession who choose to act independently of the clique, as for instance Mr. Edwards. This gentleman is not a homœopathic practitioner, but having confidence in the knowledge and judgment of Mr. Blake, he has chosen to consult him in preference to others of the profession, and is sent to Coventry accordingly." &c.

In such a case as this, a simple and temperate exposition of the ethical laws of the profession, sedulously excluding all technical questions, is requisite, in order that the public mind may duly understand the improper conduct of men like Blake and Edwards. On this point the public may be legitimately appealed to; a fraud is a question of morals, and may be easily comprehended by all educated persons. Such an exposition, well circulated amongst the better classes, would quickly strip Mr. Blake of his pseudo-martyr's crown. But the same newspaper article contains matter of much more serious import; and it is to the imputation it throws out that we wish to draw the special attention of our readers, for it is continually repeated in all the empirical literature of the day, without exception, and cannot fail to have a most injurious influence. The editor of the 'Bridgewater Times' thus writes of the members of the profession, apropos of Mr. Blake and his doings:

"They appear to resent any departure from precedent in a manner which leads the public to suspect that they are enemies to the advancement of medical science. Instead of carefully and calmly examining any new principle or practice, they at once place themselves in opposition, ridicule it, and its professors; and if they can't succeed in upsetting it in this way, they strive by some such means as that exhibited in Messrs. Edwards and Blake's case to damage the character of its professor in public estimation. Luckily the public see through these endeavours," &c.

We do not know whether this accusation be true or false; but we are certain that all experiments on health and life, by whomsoever made, all facts or phenomena likely to elucidate the science, or add to the art of medicine, nay all things whatsoever having relation thereto, deserve a calm investigation from the profession. Human life and ease are too sacred to be sacrificed to prejudice, however praiseworthy; medical art must be advanced without regard to feelings or individuals. The true practitioner like the emmet,

"Quicquid ore trahit, et addit acervo."

Much experience is to be gained from the proceedings of all these empirics; and a practitioner is not justified in abandoning his patient if one of the class be called in; he may therefore still continue his attendance and watch the progress of the case. Should he, indeed, apprehend that the proposed empirical treatment will shorten his patient's life, or be otherwise injurious to him, the practitioner is *bound*, we think, by ethical considerations, to continue such supervision. On this point, Percival has a paragraph, which might have been very properly grafted into the American Code. It is this:

"The use of quack medicines should be discouraged by the faculty, as disgraceful to the profession, injurious to health, and often destructive even of life. Patients, however, under lingering disorders, are sometimes obstinately bent on having recourse to such as they see advertised or hear recommended, with a boldness and confidence which no intelligent physician dare to adopt with respect to the means that he prescribes. In these cases, some indulgence seems to be required to a credulity that is insurmountable; and the patient should neither incur the displeasure of the physician, nor be entirely deserted by him. He may be apprized of the fallacy of his expectations, whilst assured at the same time that diligent attention should be paid to the process [progress] of the experiment he is so unadvisedly making on himself, and the consequent mischief, if any, obviated as timely as possible."*

We trust the profession at large will adopt this practice, of carefully watching the progress of all their cases that may come under the treatment of any empiric whatever. Very much and very valuable experience may thereby be gained. But let them undertake their task as unprejudiced, philosophical observers; let them discard from their mind any notions as to what is "humbug," or a "farce," or imposture.—Many of the phenomena of Mesmerism are as real as the phenomena of ordinary sleep. *A priori*, there is no reason why an intermittent, monotonous, or equably continuous action on the visual nerves should not produce sleep and its results, as well as the same kind of action on the auditory nerve. And we might extend this principle even to the tactile nerves. That the sleep so produced should differ in its nature from ordinary sleep, is almost a necessary result—but what a field for neurological research is hereby opened out! So, if, after many months of mesmeric labour, absorption should be excited in an opaque cornea (and this is quite possible), we may gladly add the experiment to our heap of facts, and, from it and others, be able ultimately to determine the nature of the influence which imagination or faith, acting through the brain and along the nerves, exercises upon a part to which it is directed,—for that both *can* change the physical condition of distant parts is notorious;—and thus a curative method may be added to medical experience, available when the wild and visionary hypotheses of the mesmerists themselves shall have followed their authors into oblivion.

Not less fruitful in experience will homœopathy be found. Much remains to be investigated as to the *modus operandi* of drugs; much more to be established before we attain to the perfection of medical art—the most certain and the easiest cure of diseases. On these points, the experiments of homœopathy may be made rich in results; and we may establish practically at least this point—that many diseases can be cured in the present state of our knowledge without any medication whatever. We may also watch the course of diseases in persons placed under favorable circumstances as to diet and regimen, uninterrupted by the action of so-called remedies; or in other words, we may acquire an improved natural history of disease. And one thing every true practitioner is bound to study, namely, to what extent the present routinism and medication, or treatment by drugs, is necessary or unnecessary, and whether much suffering caused by over-active medication may not be altogether avoided. This knowledge, we repeat, the true practitioner *must* seek after; and the results of homœopathic practice presents him with the crude materials ready to hand. If, then, he will not or cannot conscientiously practice homœopathically let him investigate the doings of those who can and will. To ignore the facts altogether, is high treason against orthodox medicine; it is to inflict a great injury on his art, and on the body to which he belongs.

The same remarks apply to hydropathy. Although obviously empirical, and although founded by a charlatan, yet there is much in the experience it supplies which may be turned to valuable uses. If it were even more thorough empirical than it is, or its founders and practisers the most impudent and ignorant of quacks, still the orthodox practitioner must select the grain from the chaff, and use it as the nutriment of orthodox science and art. The use of water in the treatment of disease is no new thing in medicine; and to leave so potent and so valuable a remedy in the hands of empirics, is as impolitic as it is unwise. Physicians with reputations beyond a suspicion of empiricism, recommend some of the various methods used by the hydropathists (as the wet-sheet) for the cure of disease; and we know those who use them successfully. Glad to be able to treat disease by experience gathered from *any* source, why should they hesitate to extend the discoveries of medical art by experience gathered from the doings of the hydropathic empiric? The rational practitioner, surveying with a calm dispassionate spirit the labours of the empirical therapeutists around him, and testing their experience by science, finds as much of good in the doings of the hydropathist, as in those of the unconscientious, unthinking routinist. Nay, we confess with grief and sorrow that very often the communications addressed to the weekly journals, and especially to the daily papers, detailing the results of the experience of orthodox practitioners, are lamentable exhibitions of ignorant dogmatism, useless to the art, and manifesting in the writers a sadly defective education and training, Every such communication is an injury to the good fame of orthodox medicine, at which the well-wisher to his noble profession must groan: and every such communication ought to be considered as a disgrace, and to serve as a spur to those corporate bodies to which the education of the rising generation of practitioners is intrusted. To the tolerant and enlightened class of practitioners we would recommend a practical consideration of the experimental results of hydropathy; and we venture to say that they will extend the resources of their art, and in doing that give the most effectual check to the water empiricism. Apart from the ridiculous designation of *water-disease*, which has been given to the system of cure in which water is a principal agent, the use of the means adopted by the dydropathist is, or ought to be, the subject of a leading chapter in orthodox therapeutics; and, for a large class of diseases, we know not of a more effectual or safer remedy than those means afford. So much the interests of medical art, and the interests of humanity, demand from us.

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* Percival's Medical Ethics. Oxford Edition, p. 60.

The Medical Corporations have a duty to perform in this matter. It is a new thing to find men seeking the diplomas and licenses of public bodies, that they may the more effectually injure the established system of medicine; it is a new thing, we say, to find individuals who have studied medical science, and been cherished by a medical *alma mater*, expressly claiming the ear of the public in virtue of the licenses or diplomas they have obtained, that they may attack, and—if such an impossibility were possible—destroy the source of their knowledge and authority. It is a new thing to find such men banded together for the purpose of disseminating as widely as possible detestable sentiments regarding the orthodox system of medicine, like that which Hahnemann penned, and which we have quoted (p. 294).*

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* A writer in the 'Homœopathic Times,' apparently the editor, introduces an extract, containing the offensive paragraph, with the following recommendation: "We request

Empirics have often successfully gained admission into the ranks of the orthodox, but it has been for the purposes of amending their title and conduct; the deliberate treachery we have described is peculiar to the homœopathic quack. As all candidates take an oath, or make an affirmation on admission, we should recommend that it be remodelled, so as to comprise cases of immorality like these. Every honest man must hold treason of the stamp we allude to in abhorrence; whatever may be their motives and however great their industry, their talent, or their acquirement, it is impossible to tolerate such deliberate fraud and treachery. Of course, the opposition of the profession to homœopathy will be advanced as a sufficient excuse; but the perfect freedom of doctrine and practice permitted within the profession meets this excuse at once; every man is at liberty to practise as he will, provided he avoid practising the tricks of the empiric also—that is to say, provided he do not vaunt to the public the superiority of his own method above all others, and systematically vilify the practice of his brethren. We repeat, the examining boards have a duty to perform, in checking this new crime against society, for such it is.

And one word let us say to those medical men who have inadvertently or intentionally mixed themselves up with empirics, and thus have been placed in a false position. No doubt they have found how difficult it is to retrace their steps, how unexpected has been their fall—

> "———— Facilis descensus averno
> Sed revocare gradum, superasque evadere ad auras
> Hoc opus, hic labor est."

To one class in particular we would say, if you conscientiously believe the dogmas of Hahnemann, and successfully practice your art according to his precepts, continue so to believe and so to practise; but at least cast away your sectarian designation of "homœopath," as a badge of disgrace; —be no party to the public expression of the vulgar vaunts and assumption of superiority of the sect;—sanction no aberration from the well-established ethics, principles, and customs of your honorable profession; but, on the contrary, enrich the records of legitimate medicine with the results of your experience in materia medica and therapeutics; or, in the words of Dr. Samuel Brown, promulgate your truths, not like a sectarian, but as becomes a catholic member of the universal school of scientific investigation.

Of the professed followers of Priestnitz, and Mesmer we have no hope; we recommend them to join the homœopathists and hygieists; and, if it be possible, work out of united empiricism the truths it may contain, so that in the process of elaboration their sectarian bitterness may chance to be softened, their false principles neutralized, their false philosophy corrected. Of this great fact they may be certain, that every day will only add to the grandeur, the influence, the usefulness of legitimate medicine; that the incessant labour of the great body of men who fill its ranks will daily deepen its foundations and widen its extent, until the SCIENCE OF LIFE is fully elaborated, and man is at last enabled TO KNOW HIMSELF.

our readers to read attentively and weigh well the following quotation from the Introduction to Hahnemann's Organon;" and adds, after that extract: "Our illustrious founder, who so manfully has declared his solemn conviction, not only that his therapeutical law is the only true law of healing, but ascribes his discovery of it to the goodness of God, in making it known to him for the benefit of mankind," &c. "Manfully" is a pleasant euphuism, indeed, to characterise such overweening vanity.

ART. II.

1. *The First Medical Report of the Hospital for Consumption and Diseases of the Chest.* Presented to the Committee of Management by the Physicians of the Institution.—*London*, 1849. pp. 42.

2. *Clinical Lectures on the Physical Diagnosis of Phthsis, delivered at the Hospital for Consumption. &c.* By RICHARD PAYNE CALTON, M.D., Assistant Physician to the Hospital.—*London*, 1849. pp. 24.

The appearance of the two pamphlets named above, give us an opportunity of considering more particularly the several signs and outward manifestations of one of the principal of those morbid processes, whose intimate and deep-seated nature we have discussed in our recent articles on Tubercle and Scrofula. The Report issued by the Medical Officers of the Consumptive Hospital, taken with Dr. Walshe's excellent Report which appeared in our own pages, forms a most valuable contribution to our knowledge of one of the most important diseases with which the practitioner has to contend. It is, indeed, the first time that any hospital has sent out a document of this nature; and, as it appears that the Report is to be continued annually, we cannot exaggerate the advantages which must result from a yearly analysis of the observations made within the walls of the Hospital, from a comparison of the data of one year with those of the next, from the correction of the inferences drawn from small numbers by the results deduced from large quantities, until all sources of error shall be reduced to their minimum, and we shall be able to state the chances of error to be incalculably small.

In this First Report, the points which are brought under consideration are limited,—

> "1. To the number of patients treated, and the facts in their history which have reference to the origin and progress of consumption.
>
> "2. To some of the principal signs and symptoms of the disease.
>
> "3. To the duration of the disease and the results of treatment." (p. 7.)

It appears that, since the opening of the Hospital, 888 patients have been admitted with consumption. These numbers included 211 patients belonging to Dr. Walshe; which, with 418 out-patients, constituted the cases on which his Report was founded.

1. *As to the influence of sex.* Of the 888 patients, 542 were males and 346 were females; that is, of males 61 per cent., of females 38·per cent. Dr. Walshe's 211 in-patients (included in the 888) gave 130 males, 81 females, is as the former result, viz. of males 61, of females 38 per cent. So that the larger series of numbers is identical with the smaller. But when Dr. Walshe's 418 out-patients are added to the 211 in-patients, we get an entirely different result. The numbers then are 321 males, 308 females, or 51 and 49 per cent respectively; while, if Dr. Walshe's 418 out-patients are separately considered, we find among them 191 males and 227 females, or nearly 45 per cent. of males and 54 per cent. of females. So that, singular as the observation may appear, the out-patients and in-patients give entirely different results in respect of the sex most liable to be attacked by phthisis, and the differences are too great to be within the ordinary errors of calculation. Either there must be errors

of diagnosis, or else we are again reminded of the extreme caution which is necessary in generalizing from numerical analysis. It might *à priori*, have been supposed that the sexes would bear to each other, among the in and the out patients, a similar ratio.

Louis' results accord more with the out-patients' ratio than with the other. Out of 164 patients referred to in his work on Phthisis, 72 were men, 92 were woman, or 44 per cent. of men, and 56 of women; wherefore Louis considers it probable, that "phthisis is more frequent in females than in males," agreeing herein with the opinion of Laennec, and differing from that of Sir James Clark.

To render these differences of statement more evident, the following table may be useful. As it is merely to illustrate the point, the decimals are omitted.

Place and Observer.	Per centage of. males attacked.	Per centage of females attacked.
In-patients of Consumptive Hospital (London)	61	38
Dr. Walshe's in-patients (London) . .	61	38
Dr. Walshe's out-patients (London) . .	45	54
M. Louis' patients (Paris) . .	44	56
M. Chateaneuf's cases* (Paris) . .	48	56
Dr. Home's cases (Edinburgh) . .	62	38
Deaths from phthisis in Registrar-General's Return (London), copied into Report of Consumptive Hospital . . .	53	47

Adding the numbers of the first six columns together, the result in round numbers is 54 per cent. of males, and 46 of females, which nearly agrees with the Registrar-General's returns.

In a paper, on "Hæmoptysis as a Symptom of Phthisis," in the 'Me-Medical Gazette,'† it is stated by Dr. Parkes. that out of 77 patients with hæmoptoic phthisis, applying as out-patients at University College Hospital, there were 26 men and 51 women, or at the rate of nearly 34 per cent. of males, and 66 per cent. of females. But, as there was a great excess in the entire amount of female out-patients, when the phthisical patients were considered in reference to the number of each sex applying for relief, the two sexes were found to bear an equal proportion to each other. In the Annual Summary for 1848, of the in-patients at St. George's Hospital, drawn up by Dr. Barclay, we find 62 males and 32 females, viz. 66 and 34 per cent.

It is evident that some additional inquiry is wanted on this point, before the comparative liability of sex can be considered and settled; but it would seem probable, when the excess of female population is taken into account, that females are less liable than males

2. As to the influence of *age*, the Consumptive Hospital Report gives us the following information. In both sexes, the period most liable is from 25 to 35; and at this age it is nearly the same for either sex, being for men 35·5 and for women 34·42 per cent. This agrees nearly with Dr. Walshe's observation, which makes the decennial period between 20 and 30 yield 41·34 per cent. of the whole number of cases. After 35 years (when no correction is made for population), a rapid decrease takes place in the numbers assigned to each decennial period; the liability

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* Referred to by Louis—Translation, p. 480.
† March, 1849.

between 35 and 45 being 19 per cent., and between 45 and 55 only 8 per cent. This is in accordance with Sir James Clark's rule, that the mortality determined by phthisis has its maximum towards the 30th year; and it agrees also nearly with the results furnished by the statistics of Paris, by which the following order is established for the liability of phthisis in each decennial period: 1st, 20 to 30 years; 2d, 30 to 40 years; 3d, 10 to 20; 4th, 40 to 50; 5th, 50 to 60; 6th, 0 to 10; 7th, 60 to 70; 8th, 70 to 80; 9th, 90 to 100.* In the Consumptive Hospital Report, the following is the order according to amount of liability: 25 to 35 years; 15 to 25; 35 to 45; 45 to 55; 5 to 15; 55 to 65; 0 to 5; 65 to 75.

Up to the age of 50, Dr. Walshe's numbers seem to show a greater accordance in the two sexes, in respect of liability from age. But the Hospital Report does not quite accord with this According to these calculations, under 25 years the liability is greater in females than males by nearly 10 per cent.; and after 35 it is greater in males than females by about 12 per cent.

These numbers show merely the relative ages of phthisical patients considered among themselves; but it is evident that, before they can give an exact notion of the liability, we must compare the number of phthisical persons with the total number living in each decennial period. This has been done in the Hospital Report. It there appears that the population falls so rapidly in the decennial periods from 35 to 55, that the comparative number of consumptive patients is in reality greater during these years than it would appear to be from a consideration of consumptive patients alone. Still, the greatest liability is between 25 and 35 (viz. 42 per cent.); but the liability between 35 and 45, and 45 and 55, is respectively 32 and 21 per cent., instead of 19 and 8 per cent. This is a very important correction, and we shall be glad to see it worked out on a larger scale: it would seem now to point to a very gradual increase in liability to phthisis up to the age of 35, and then to as gradual a descent. But there would not appear to be that extreme liability between the ages of 25 and 35 over the immediate succeeding years, which the uncorrected table indicates.

Dr. Parkes compares the average age of the phthisical out-patients, over 15 years of age, at University College Hospital, with the average of the other patients over the age of 15 years. It appears that the average age of 341 non-phthisical males was 34 years 10 months, and the average age of 676 non-phthisical females, was 34 years 3 months; of both, 34 years 7 months. The average age of the phthisical patients was 32 years 3 months. But it appeared that the lower age of the phthisical women caused this difference, since the average age of the phthisical women was only 29 years, or 5 years 3 months below the average; while the average age of the phthisical males was 35 years 5 months, or 8 months over the average. This seems to accord with the Consumptive Report, and to make the females comparatively more liable at a younger age than the males.

Age, then, seems to exert a most important influence on the development of phthisis,—an influence superior, as Dr. Walshe remarks, "to that of sex and of all agencies connected with occupation, social state," &c.

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* Traité de Pathologie Interne. Par A. Grisolle. Tome ii, p. 312.

The nature of this influence requires further investigation, and will most assuredly repay the labour of the inquiry.

3. The influence of *Social condition* thus appears in the Report.

The influence of married and single life is attempted to be deduced, by comparing a series of phthisical with a series of non-phthisical patients. For the purpose of making this quite clear, we subjoin the table :

Social Condition and Age.		Consumptive.		Non-consumptive.	
		Males. per cent.	Females. per cent.	Males. per cent.	Females. per cent.
Single.......	under 25	25·2	35·0	35·6	40·3
	over 25	18·8	20·6	10·0	9·6
Married.....	under 25	3·9	6·0	2·7	4·2
	over 25	49·5	31·7	46·7	34·4
Widowed—all ages....		2·6	6·4	4·8	11·2

To estimate the influence of married and single life, we should require such greater numbers both of consumptive and non-consumptive persons that it is advisable not even to attempt an inference as to the bearing of the above table. Dr. Walshe makes the curious observation that the per centage of phthisical persons married, under 35, was considerably greater than the per centage of non-phthisical married people of the same age. He concludes therefore that there is a greater " proneness to early marriage" among the consumptive of both sexes. The Hospital Report does not give us data by which we can test this point.

4. Influence of *Trade and occupation.*

The influence of trade is estimated from the recorded occupations of 4358 in- and out-patients. An attempt is made first to estimate the effects of occupations carried on in the open air, or within doors. This estimate however, is only possible in the case of males; as all the females followed in-door occupations, being for the most part servants, milliners, laundresses, &c. But among the men it appears that out of every 100 patients 63 had followed in-door occupations, 30 had followed out-door occupations, and 7 had been engaged in trades which could not very well be classed under either of these heads. As a companion to this table, another is given of 885 males attendant at a general hospital; from which it appears that for every 100 non-consumptive patients, 66 had followed in-door, 19 out-door, and 15 mixed occupations, that is, both in- and out-door.* The number, therefore, of consumptive and non-consumptive patients following in-door occupations is nearly the same, the per-centage of the consumptive patients being rather less.

But it is evident, that these tables presuppose that the patients of a general hospital are comparable with the patients of the Consumptive Hospital, which we are inclined to doubt. Many men who would *not* seek advice from a general hospital, would do so from the Hospital at Brompton, which is necessarily more attractive to those who fancy they labour under the special complaint which it professes to treat. Also, both tables lose their value from a want of knowledge of the comparative number of persons engaged in in- or out-door occupations among the classes who furnish the patients.

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* We have altered these numbers slightly, by comparing only males with males, and disregarding females.

Descending to particular trades, the Report then specifies certain employments, such as labourers, clerks, shoemakers, printers, &c., and compares the number of these, both among the consumptive and the non-consumptive patients, with the whole number of persons engaged in London in each occupation. The number of cases is too small, and the attendant circumstances too little known, to allow us to place much reliance upon the inferences deducible from the figures. It would appear that more labourers apply at the Consumptive than at a general Hospital, in the proportion of 9 to 5; more clerks and warehousemen, in the proportion of 4 to 1; more printers and compositors, in the proportion of 4 to 1; more in-door male servants in the proportion of 2 to 1; fewer in-door female servants, in the proportion of 50 to 64; and more milliners, in the proportion of 18 to 13. With regard to some of these trades, as, for example, printers and compositors, it is quite possible that the above comparison may, as above stated, be vitiated by the fact, that this class of men being, for the most part, in good circumstances, may seldom apply for relief at a general hospital, but are very likely to seek aid from the Consumptive Hospital. And, with regard to all the classes, it is evident that we ought to know, not how many of them happen to be attending at a particular general hospital, but how many are altogether sick and attending at any hospital. The general hospital in question may itself be favorably placed for receiving one class of patients, and be removed from another class. We may make also this objection to the tables of the Report,—that the trades are not sufficiently divided. Thus, clerks, warehousemen, and shopmen are placed together, although the occupations are very different; the clerk is altogether sedentary,—the shopman often very active. Milliners and needlewomen ought to be distinguished, according as they work in their own home, or in the houses of their employers. The influence of age, also, which has been shown to be so great, should be abstracted, before the influence of trade is estimated; and the same may be said of hereditary predisposition, habits, and mode of life. The influence of trades and occupations upon such a disease as consumption is, as Louis remarks, "one of the most complicated and difficult which the pathologist can propose to himself to solve." Nevertheless, we do not despair of seeing its solution worked out by the gradually increasing experience of the Consumptive Hospital.

5. *Hereditary predisposition* is the next subject discussed by the Report. The following are the facts recorded on this head. Among males, 18·2 per cent., and among females, 36·3 per cent, had had phthisical parents, or one phthisical parent. This great difference between the sexes is accounted for by the Report, on the supposition that the females are better acquainted with their domestic history. The numbers given by Dr. Walshe are a little higher; the per centage among the males was 21·83 per cent.; among the females, 37·34 per cent. The agreement is thus very remarkable. Still more remarkable is the fact, that the opinions announced by the two Reports, from figures thus identical, are altogether dissimilar. The Hospital Report, which gives the lowest per centage of presumedly derived cases, considers the frequent hereditary transmission of phthisis absolutely proved; Dr. Walshe, with a higher

per centage, arrives from a consideration of other facts, which we shall presently give, at the final conclusion, that "Phthisis in the adult hospital population of this country is, to a slight amount only, a disease demonstrably derived from parents."

How, then, arises this difference, when both parties start from a similar foundation? There is no disagreement in the facts; whence arises this difference in the inferences founded on these facts? It arises from an entirely different manner of viewing these facts. Thus, the Hospital Report compares the phthisical patients with insane patients, among whom 11·9 per cent. of males and 13·4 per cent. of females are descended from insane parents.* Therefore, say the Reporters, as no doubt can exist that insanity is transmitted frequently from parent to offspring, we may take its number as a standard of comparison; and when we do so, we find that more phthisical patients are descended from phthisical parents, than insane patients are descended from insane parents. In fact, the proportion is double; for, taking both sexes together, only 13¼ per cent. of insane patients have an hereditary predisposition, and 24½ per cent. of phthisical patients have this transmitted taint.

Dr. Walshe regards the facts in quite a different light. They show, he says, that 26 per cent. of a given generation come of tuberculous parents. But, as tubercle is a disease most widely spread and deeply rooted in this country, it might be predicated of any class of patients, that 26 per cent. of them would come from tuberculous parents. In this respect, phthisical patients may not differ from non-phthisical patients. To prove this, Dr. Walshe selected 234 persons, free from any suspicion of phthisis; and finds that of these nearly 17 per cent. sprang from a phthisical father or mother. And although this number is 9 per cent. less than in the case of phthisical patients, this difference is lessened by the fact, that, among consumptive patients, the proportion who had parents free from phthisis, was proved to be 57 per cent.; and, among the non-consumptive patients, the proportion of those whose parents were not phthisical could not be proved to be more than 47 per cent. Dr. Walshe concludes, therefore, that the mere fact of 26 per cent. of phthisical persons being derived from phthisical parents proves nothing in favour of hereditary transmission.

Dr. Walshe adduces another argument, derived from the fact, that, as a certain considerable number of phthisical persons die at an early age unmarried, and therefore without propagating phthisis, and yet as in the next generation there will be just the same proportion of phthisical patients as before, either there must be a great proneness on the part of phthisical stock to multiply, or much phthisis must spring up in each generation, altogether independent of parentage. The last supposition is doubtless the correct one.

It appears to us, that Dr. Walshe is decidedly the most correct in his interpretation of the facts. Several objections may be taken to the mode adopted in the Hospital Report, of comparing insane and consumptive patients. In the first place, from many insane persons no information at all about their parents can be obtained, and the prevalent notion about the hereditary transmission of this disease has been derived, not from the records of pauper asylums, which probably do not present the true amount, but from the general experience of the upper classes of society, who know the descent of each affected person, and can trace the taint which he could not himself reveal. Secondly, phthisical and insane patients are not comparable,—inasmuch as tuberculosis is a disease universally prevalent; insanity is comparatively uncommon. Of non-phthisical persons, 17 per cent. are derived from phthisical parents; but nothing like 17 per cent. of sane persons are derived from insane parents. The elements of the calculation are in each case quite different.

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* This information is derived from observations made at Hanwell, Bloomingdale (U. S.), New York, and Morningside (Edinburgh.)

Although, however, we are disinclined to adopt the conclusions of the Report, that phthisis is more frequently transmitted than insanity, we think that both the Report and Dr. Walshe's table indicate the probability of the transmission to a certain extent. Thus, it is found that a double taint, i. e. tuberculous disease in both father and mother, exists more frequently in phthisical than in non-phthisical persons; also the collateral relatives (brothers, sisters, &c.) appear to be more frequently diseased in the former than in the latter class. The Hospital Report also adduces a very strong argument in favour of this view. It appears to be incontestibly proved, that phthisical fathers transmit the disease more frequently to their sons (in nearly 60 out of 100 cases of transmission), and phthisical mothers more frequently to their daughters (nearly 57 per. cent.) Results nearly similar are found in insanity. The father transmits the disease to his sons in 54·6 per cent.—to his daughters only in 45·4 per cent.; the mother transmits insanity to her daughters in 54·4 per cent.—to her sons only in 45·3 per cent. This remarkable influence of the parent points strongly to hereditary transmission.

On the whole, we may conclude that, while, in all probability, phthisis may be transmitted from parents to their children, the extent to which phthisis is so transmitted remains yet to be determined; but no doubt can exist, that the frequency of the transmission has been, in this country, extremely overrated.

6. *Spirometer observations.*

The majority of these observations were made by Dr. Hutchinson, the inventor of the ingenious and useful instrument for marking the number of cubic inches of air which can be expelled after the deepest possible inspiration. Three tables are given. In the first, the examination of 14 male patients in the first stage of phthisis, or before softening, is noted. In all, the "vital capacity"* was diminished; those who should, according to the calculation, have been able to expire 238 or 198, or some other number of cubic inches, expired 20, 30, 60, or even, in one case, 150 cubic inches less than they should have done had they been healthy. The most marked diminution in the vital capacity was in cases of phthisis and emphysema, and in another case in which both lungs were affected.

The second table is composed of observations on 14 males in the second stage, after softening. Here the small quantity of air which could be expired is very strikingly marked. The smallest difference in the whole number of observations between the actual number of cubic inches of air expired, and the number which ought to have been expired, is 128 cubic inches; and the diminution ranges between this and 192 cubic inches, which is the greatest change recorded in the table. The vital capacity, therefore, regularly diminished with the progress of the disease.—In a third table, thé average of the vital capacity of 415 phthisical cases is compared with the average healthy capacity calculated for the same persons. The average diminution was found to be 93 cubic inches. The average diminution in the first stage (before softening) was 74 cubic inches, and in the second stage (after softening) 116 cubic inches.

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* The term "vital capacity" implies the number of cubic inches of air which can be expired into the spirometer after a full inspiration.

With regard to the use of the spirometer, the conclusion arrived at by the Report is, that this instrument "gives distinct indications at an early period of the malady, and that these indications become more obvions in proportion to the progress of the disease." We should desire, however, a little more explicit examination upon this point. Are the indications of the spirometer an indication of the changes going on in the lungs, or of the general constitutional debility and loss of muscular strength, which often attends or precedes the local symptoms of the tubercular cachexia? Or is the alteration in the "vital capacity" consequent on both these conditions, as would appear probable? Will the spirometer give indications, as inferred by Mr. Hutchinson in his paper in the 'Medico-Chirugical Transactions,' before the most skillful stethoscopist can detect any alteration in the physical condition of the lungs? The practical utility of the spirometer depends upon the answers given to these questions, and on the results which will be given by its employment in all cases of chronic disease of the chest or other parts, or of loss of muscular strength from any cause. At present our own opinion is, that the spirometer affords very limited information, in cases of phthisis; practically speaking, it gives pecision only to what was before able to be stated in general terms. This also appears to be the opinion of the Reporters. After referring to the effect of diseased heart, pneumonia, emphysema, &c., they say:

> "A deficiency of vital capacity alone, cannot therefore be considered a proof of the existence of phthisis; but these tables are given for the purpose of showing, that where consumption was present without any of these accidental circumstances, the vital capacity in all the cases was more or less diminished."

7. *Hæmoptysis.*

It is stated in the Report, that considerable attention has been paid to hæmoptysis, a most important, and often a very early symptom of phthisis.

The following are the facts given in the Report. In 1381 consumptive persons, 870 (i. e. 63 per cent.) had had hæmoptysis at some period of the disease. This number is below the real amount, inasmuch as many patients were seen only for a short time at an early period of the disease and were then lost sight of. Consequently, among such persons, there may have been subsequently many cases of hæmoptysis. The numbers given by Dr. Walshe are above these. Out of 131 cases, hæmoptysis was present in 106, or nearly 81 per cent. Louis' numbers give, as is well-known, 65·5 per cent.

Such being the general facts of occurrence of hæmoptysis, the Reporters proceed briefly to consider the effect of sex, age, and period of the disease upon it.

a. As to *sex*, it was found that among males 62 per cent., and among females 65 per cent., had suffered from hæmoptysis. It was therefore rather more frequent in women than men. The excess, however, is trifling, and is not nearly so great as Louis' observations make it. Out of

42 phthisical women, Louis found that 32 had had spitting of blood; while, out of 38 men, only 21 had suffered from this symptom. Therefore Louis concludes that "hæmoptysis is of more frequent occurrence in women than men, in the proportion of three to two." Dr. Walshe's numbers accord with the statement of the Report. In 75 males, 62 (or 82·61 per cent.,) and in 56 females, 44 (or 78·57 per cent.) had had hæmoptysis. The influence of sex therefore, from the English observation, would not appear to be very decided. As remarked in the Hospital Report, the paramount influence of tubercular disease of the lung in the production of hæmoptysis, is illustrated by this almost entire absence of the influence of sex.

b. The *age* of the patients exerted a greater influence than sex on the occurrence of hæmoptysis. The analysis of the facts noted in the Report seems to imply, that hæmoptysis occurs more frequently during the earlier part of female life, than at the later periods after the 40th year. In males, on the other hand, the reverse of this proposition seemed to be implied. Thus, in 301 females under 35 years of age, there was hæmoptysis in 201 cases, or at the rate of 66·8 per cent; in 72 females over the age of 35, there 42 cases of hæmoptysis, or at the rate of only 54·6 per cent. Or, by taking certain series of years, the same fact is brought out. Thus, in females between 5 and 25, the proportion of cases of hæmoptysis is 72 per cent. On the the other hand, in males there were 478 cases under 35 years of age, and of these 306 had hæmoptysis, or at the rate of 64 per cent.; while, in 228 cases over the age of 35, hæmoptysis occurred in 147 cases, or at the same rate of 64 per cent. But in males from 5 to 25, the per centage was 57 per cent.; and, from 35 to 55, no less than 67 per cent. This result, as far as females are concerned, may be considered as a kind of parallel to the law which indicates the fact of females suffering earlier than males.

Dr. Walshe's results are not exactly in accordance with these. It seems to be implied, although the numbers are not large, that in both sexes the tendency to hæmoptysis increases with age. Thus, in males aged from 15 to 30, the per centage of hæmoptoic cases was 81 58; between 30 and 50, 84·84 per cent. In females, the per centage for the same ages was respectively 73·17 and 92·86. In fact, Dr. Walshe's investigations seem to show that, after the cessation of the catamenia, there occurs in phthisical women an abrupt increase in the tendency to hæmoptysis. Louis' experience is in accordance with this. Below the age of 40, the third part of the women had no spitting of blood; after the age of 40, only one seventh part were exempt. In the males, on the contrary, the proportion was exactly the same on both sides of the 40th year.

It is not advisable to decide as to which statement may be the correct one. The question is rendered difficult by many causes, especially by the occurrence of hæmoptysis in women from catamenial irregularities. The influence of this has indeed been denied, but without adequate evidence. It has not, however, been determined what is the average age at which women are prone to suffer from hæmoptysis connected with menstrual irregularity. In 18 cases of this kind, mentioned by Dr. Parkes in the paper referred to, the average age was 26 years, being more than 7 years under the average of the patients generally, and 3 years under the average of the consumptive females. If such cases, then, were included among phthisical patients, they would give a great preponderance to the cases of hæmoptysis in women under 35. This error has, however, been altogether avoided in the Hospital Report, as it is stated that all cases of the kind have been carefully excluded. It follows, therefore, that deeper investigations are necessary to determine the real facts of the case; and after that is done to discover the explanation.

c. The influence of the *stage of the disease* on the occurrence of hæmotpysis is then given. In both males and females hæmoptysis was very much more common in the early stages before softening, than after softening. Thus in males before softening 73·5 per cent., and in females 72·4 per cent., had had hæmoptysis. But in the late periods of the disease, only 26·5 per cent. of males, and 27·6 of females, were thus affected. This is quite opposed to Dr. Walshe's statements. Before softening in both sexes, the hæmoptysis occurred in 71·79 per cent.; after softening in 86·3 per cent; this last number contrasting remarkably with the 26 and 27 per cent. of the May Report. Dr. Walshe concludes, indeed, from an analysis carried still further, that the conditions of softening and excavations do exert an augmenting influence on the production of hæmoptysis; while the Hospital Report would seem altogether to set aside such influences, or rather to assign to them a directly opposite effect. Certainly if it be supposed that, in the early stages, tubercles when deposited produce molecular hemorrhage in any way, it is singular that they should not equally produce it at any subsequent period, when deposition is often going on in even a higher degree than at first. This point again needs further investigation. With regard to the influence of age, sex, and period of disease upon the quantity of blood lost, the Hospital Report makes no comment. We trust that this will be one of the subjects they will discuss in their next Report. It is well worthy of close investigation. Dr. Walshe concludes that men are more disposed to profuse bleedings than females; that it is more likely for the first than for subsequent hemorrhages, to be profuse; and that in the latter stages of the disease, the hæmoptysis increases in amount. Dr. Parkes' observations are confirmatory of these. In 31 cases before softening, the bleeding was profuse in 11, slight in 20. In 36 cases after softening, the bleeding was profuse in 18, slight in 18. So that the hæmoptysis became more profuse after softening. Again, in the 11 cases of profuse hæmoptysis before softening, there were 5 men and 6 women; after softening, in the 18 cases there were 8 men and 10 women; so that as among Dr. Parkes's patients the whole number of hæmoptoic phthisical women was double the whole number of phthisical men, it would appear from the numbers given that men in both periods of phthisis are considerably more disposed to profuse hæmoptysis than women. It does not appear from Dr. Walshe's cases that hæmoptysis was more common in disease of one than the other lung. Hæmoptysis in phthisis is never the first symptom; some little cough, loss of flesh, &c., almost always, or always precedes it. The value of hæmoptysis is often extreme, when it coincides with these symptoms before physical signs are developed.—We trust that in their next Report the Hospital Committee will take up this subject in all its branches.

8. *Duration of the disease.* The following extract gives the results of the analysis on this point: of 215 cases—147 males and 68 females:

"Phthisis rarely proves fatal in less than three months; only one case being recorded as having been fatal within that period. In 22 out of 215 cases, the disease existed for a period of between three and six months; of these 22 cases, 11½ per cent. were males, and a little more than 7¼ per cent. were females. In 36 cases the disease lasted from six to nine months; of these, 19 per cent. were men and 12 per cent. women. The disease existed for a period of from nine to twelve months in 30 cases, of whom about 15 per cent. were males, and nearly 12 per cent. females. The half-yearly periods from twelve months to four years, contain in each period, with one trifling exception, a decreasing number of cases. For while we observe that nearly 17 per cent. of the cases have a duration of from six to nine months, not 2 per cent. are found in the period from three and a half years to four. Fourteen persons out of 215, i. e. 6½ per cent., lived for periods beyond four years. Considerably more than half the entire number of cases were fatal within a period of eighteen months. The disease is more rapidly fatal among males than females; thus of 123 cases terminating within eighteen months, 89, or 60·5 per cent., were males; only 34, or 50 per cent., were females. After a period of eighteen months the duration is reversed." (p. 33.)

9. The *results of treatment* is the last topic discussed in the Report. The general result of the inquiry is very favorable to the effect of judicious treatment. In the early stage, before softening has occurred, 40 per cent. are much relieved; in 12 per cent. of the males, and in 7 per cent. of the females, the progress of the disease was for the time completely arrested. Nearly all the remaining patients received more or less relief. In about 4 per cent. both of males and females, the disease resisted treatment.

In the latter stages material relief was conferred in 25 per cent., and some benefit in 36 per cent., of the whole number of cases. In 6 per cent. the disease was arrested for the time. In 15 per cent. the disease was unchecked; in 18 per cent., it proved fatal in the hospital.

The details of the treatment are not given. Reference is made to the site of the hospital; to its admirable ventilation, and the uniform temperature which is preserved. The beneficial effect of these arrangements is said to be very striking. In most cases soon after admission the cough becomes less frequent; the expectoration diminishes; the worn, anxious expression of countenance is often rapidly exchanged for an easy placid look. Strangers often express surprise at the quiet and comfort of the patients, and their comparative freedom from cough.

A short account is given of the employment of three or four remedies. A fair trial was given to naphtha. In some cases of bronchitis with profuse secretion it seemed useful, but it was not otherwise productive of much benefit, and often proved hurtful. Iron was given in anæmiated cases, and was also sometimes useful. Cod-liver oil "was productive of more good in the treatment of phthisis than any other agent." Out of 542 cases, in which it has been used in both stages of the disease, in 63 per cent. the symptoms improved; in 18 per cent. the disease seemed arrested; in 19 per cent. it went on unchecked; in 70 per cent. an increase in weight during its use was noted; in some cases this was very marked; in one instance, 41 pounds were gained in 16 weeks; in another case, 19¾ pounds were gained in 28 days, and 10 pounds in the next 10 days. It was observed that, in some cases, although there was notable gain in weight, the symptoms were not ameliorated. In the majority of cases, however, the increase in weight and the improvement in the symptoms occurred together. In some few cases, the symptoms were alleviated, although there was no gain in weight. Inhalations were tried in some cases with benefit; but a fuller account of this plan of treatment is to be given in a subsequent Report. Gallic acid was found useful in night-sweats; trisnitrate of bismuth in diarrhœa.

Such are the chief points discussed in this very valuable Report. Our somewhat lengthened analysis has testified to the sense we entertain of its importance. We cannot leave it without once more expressing the hope, that we may have to recur next year to some of the topics we have now noticed, and may have to announce the final settlement of many of the points which still remain doubtful. But whether this be the case or not, the gentlemen who have framed the present Report are deserving of the thanks of every one for their excellent and instructive document.

The second pamphlet, whose title is placed at the head of our article, consists of a series of clinical lectures on the Physical Diagnosis of Phthisis, delivered at the consumptive Hospital by Dr. Cotton. Although there is nothing very novel in these Lectures, they are very complete, and are evidently written by one who is a perfect master of his subject. The style is easy and agreeable, the matter sound and practical: and we can recommend them as giving an excellent outline of the subject of which they treat. We may select the following statements as possessing considerable interest.

Bulging of the infra-clavicular region as an immediate consequence of the deposition of tubercle, a sign first noticed by Dr. Chambers, was observed by Dr. Cotton in 3 out of 400 cases. In one of these cases, after three months, the enlargement disappeared, and was succeeded by the ordinary physical signs of tubercular deposition. In speaking of dullness in the infra-clavicular region, Dr. Cotton notices one case in which it seemed to occur during idiopathic bronchitis, apparently merely from an accummulation of mucus. In 100 cases of patients examined in the early part of the first stage, the following account is given of the state of the respiration in the infra-clavicular region. In 33 cases, the respiration was weak; in 12, jerking; in 7, harsh; in 19, the expiration was prolonged; in 10, the inspiration was bronchial; in 5, harsh, with prolonged expiration; in 17, weak, with prolonged expiration. In speaking of the position of tubercle, Dr. Cotton states that, in 500 patients, he found only 4 cases in which the lower parts of the lungs were chiefly affected, and only one instance of a tuberculur cavity in the inferior lobe. The last observation refers, we presume, to a cavity in the lower lobe, unaccompanied with deposition or cavities superiorly. In speaking of the signs of pneumonia, occurring round hard tubercle or a cavity, it is stated, that, in 400 out-patients, an unequivocal fine crepitation in the vicinity of tubercle has not been once met with. In the same number of cases, friction-sound at the apex was heard 10 times. Dr. Cotton has met with one variety of the pulmonary crumpling, described by Fournet, several times; it occurred only at the apices, was most conspicuous in the supraspinous fossæ, was limited to inspiration, and sometimes was heard only during forced breathing. It resembled in sound the noise produced by crumpling tissue-paper.

The physical signs of the more advanced stages are detailed with clearness and precision, but there is nothing which calls for particular comment.

ART. III.

1. *On Stricture of the Urethra and Fistula in Perineo.* By JAMES SYME, F. R. S. E., Professor of Clinical Surgery in the University of Edinburgh, &c. &c.—*Edinburgh*, 1849. 8vo, pp. 72.
2. *Stricture of the Urethra, its Pathology and Treatment; comprising Observations on the Curative Powers of the Potassa Fusa in that Disease; with Cases.* By ROBERT WADE, F. R. C. S., Senior Surgeon to the Westminster General Dispensary, &c. &c. Second Edition, greatly enlarged.—*London*, 1849. 8vo, pp. 247.

IT is no light or easy task to get through—we were going to say *Wade* through—320 pages, more or less, on Stricture of the Urethra. The undertaking is nearly as difficult as the cure of the disease in question. If, however, it is any proof of the impression one of the works has made upon us, we will confess that its accomplishment was not effected without very serious regret that the author had not been induced to try the effect of his favorite escharotics upon his own manuscript; for we can assure him that a liberal "*destruction of its tissue*" would have been attended with the most gratifying results. If Mr. Wade would have the goodness to read Mr. Syme's little book, and take pattern thereby, when he issues another edition of his "Observations," he might not only save the printer, and the reader, and himself, a great deal of trouble, but ensure for his peculiar views a much more favorable consideration, than when he inflicts upon his brethren such a copious dilution of tyro-knowledge, as upon two occasions he has favoured them with. We have determined to set our faces against this bookmaking; for it is an evil that is becoming every day more outrageous and unblushing. The press absolutely teems with works of this class. Why, in the name of all that is reasonable, if medical men have anything new to communicate to their fellows, who are never so little occupied as to require their time to be filled up by gossip, can they not say it in a few plain words, without repeating over and over again what every one who has been twelve months in the profession knows quite well? We will just ask Mr. Wade one simple question,—of what possible use are 200 of the 247 pages he has been at the pains to write and print? Do they contain, in fact, any knowledge that has not been made public, in every shape and fashion, from the Dictionary and the Surgical Lecture, down to the pages of the Medical Journal?—not repeatedly merely, but positively till it is quite nauseating?

Mr. Syme's little work, on the other hand, is quite a model of what such things ought to be. Whether his views are right or wrong, he has evidently been influenced merely by the wish to be of use in his day and generation, and has published the 72 pages now before us without one superfluous word, and without once deviating from the main object in view.

Every surgeon must be familiar with a number of cases of stricture of the urethra, which seem to baffle every resource of his art, and set at nought all his skill and care. When he turns for information to the experience of others, he finds himself in a labyrinth of conflicting opinions, each one maintained with the same confidence, and supported with a like array of startling cases and so called "*facts.*" All cannot be right, for oftentimes they contradict each other; and it is seldom that the advocate is content with stating his own views, without at the same time having a rap at the doctrines of somebody else. There could not be a better illustration of this, than these two volumes of Mr. Syme and Mr. Wade. The latter has been written with the express view of detailing the excellent results of a practice which the former absolutely condemns. Hear Mr. Syme (p. 53):

> "It seems more reasonable to conclude, that, in the cases of alleged cure by caustic, there was no real stricture in existence, than to suppose that so improbable, or rather impossible, an achievement had been accomplished."

Hear also Mr. Wade:

> "It is not until after more than twelve years' extensive experience of its good effects, that I now venture to recommend the potassa fusa as a remedy of singular power and efficacy in the cure of stricture of the urethra."

Surely there must be something radically wrong in our profession, when such conflicting statements on a question *of fact* are thus boldly made.

The proceeding advocated by Mr. Syme, in the treatment of obstinate stricture of the urethra, is the division of the whole diseased portion of the canal by external incision; but by incision upon a grooved staff or director, passed through the stricture—so that it is essential that a way be first cleared through to the bladder, before this operation can be undertaken. Now, there are many surgeons who will at once say, "Why, this *essential* is that which renders such an operation quite unnecessary; for, in any case where you can get an instrument, however small, fairly into the bladder, the question of cure is only one of time and patience." Our own personal experience has long led us to question the correctness of this opinion. There are many cases of stricture which may be temporarily cured; but which contract again almost as fast as they are dilated, and thus render the life of the unfortunate patient a burden upon himself, and, as it were, an opprobrium to the surgeon. It is, then, with no small satisfaction that we greet this proposal of Mr. Syme's, founded as it is upon sound principles, and tested by an experience, limited it may be, yet quite sufficiently enlarged to justify a trial, and afford hopes of success. Mr. Syme speaks of it with great confidence, not unmingled with regret that he had not earlier thought of resorting to it. He says, "that he has repeatedly performed it with perfect success, and never with any unpleasant consequences;" and that he now undertakes the cure of the worst forms of stricture with a confidence he never before possessed. We think it well to quote at length the first case, in which Mr. Syme resorted to this operation; it is a very interesting and well-told one:

> "About six years ago, I was requested by the late Dr. Hay to take charge of a gentleman who had suffered long and severely from stricture of the urethra. He was between forty and fifty years of age, of tall stature and robust form. His complaint had existed twenty years, and during the earlier part of this period had been partially alleviated by the introduction of bougies, but had then gradually increased, until at length the suffering occasioned by it was altogether intolerable. During both day and night, the calls to make water were extremely frequent, and excited the most violent expulsive efforts, which, aided by a milking-like manipulation of the penis, and pressure along the perineum, never produced anything

more than a scanty dribbling discharge. From the bladder being thus imperfectly emptied, the urine was constantly passing away insensibly, so as to keep the clothes wet, with what discomfort to the patient may be more easily imagined than described. He was peculiarly susceptible in regard to atmospheric changes, and especially in damp weather suffered an aggravation of the symptoms. The urine, when collected on such occasions, was found to deposit large quantities of glairy mucus, from which indeed it was never quite free.

"On examination, I found a tight stricture between five and six inches from the orifice of the urethra; and at the second or third attempt, succeeded in passing the smallest-sized bougie fairly through it into the bladder. I then supposed that, as usual, there would not be any further difficulty in treating the case, and desired the patient to call upon me twice a week, unless when the weather or any other circumstance should render a longer delay necessary. The progress, though not rapid, at length enabled me to pass No. 5 of my scale, equal to No. 1 of that in common use, when I found it impossible to make any advance. Indeed, there was little encouragement to persevere in attempting this, as, notwithstanding the degree of dilatation that had been accomplished, there was not any appearance of relief from the symptoms of the disease.

"I then proposed to confine the patient to bed, and keep a succession of catheters, gradually increased in size, in the bladder. He made no objection, and was greatly pleased to find that, instead of the irritaton he expected, there was at once obtained complete relief from all his previous uneasy feelings. He read and wrote, ate and slept, withont the least disturbance, drawing off the urine from time to time, and observing to his great satisfaction that the mucus had entirely disappeared. At the end of ten days I withdrew the full-sized silver catheter then employed, and before twenty-four hours had expired, found the complaint in every respect exactly as it had been before the process was commenced.

"Some months after this, I divided the stricture from within by means of a catheter containing a lancet blade, which was protruded from its sheath after the instrument had been passed through the seat of contraction, and kept in this expended state while the catheter was withdrawn. A large bougie was immediately afterwards passed with perfect ease; and again hopes of success were entertained. But next day things were in precisely the same state as formerly.

"Several months having elapsed without any change, it was resolved to combine the two last-mentioned modes of treatment. In the first place, I divided the stricture as before, but on both sides, by means of two lancet-catheters, cutting right and left, and then introduced a full-sized catheter into the bladder, where it was retained for a week. For some time afterwards, it seemed as if benefit had resulted from this procedure, and the patient, by frequently passing a bougie or catheter through the strictured part, and was enabled to make water in a tolerably full stream But this imperfect relief was of short duration, and by the end of two or three weeks, the frequent calls, laborious straining, and copious mucus, proclaimed that the stricture had regained its former condition.

"The patient now protesting that life was not desirable under the torment of his complaint, and entreating me to employ some efficient measure of remedy, no matter at what expense of pain or risk of danger, I resolved to divide the stricture by free external incision. With this view, a small staff, grooved on its convex side, having been introduced, I made an incision in the raphe or the perineum from the bulb to the anus, and then feeling for the stricture, which was easily recognized by its surrounding induration, ran the knife fairly through the whole extent of the thickened texture. A full sized catheter was substituted for the staff, and retained for a few days. The patient suffered little from the operation, except some uneasiness from irritation caused by the urine passing through the wound. When it closed he felt quite well; and he continues to do so, though several years have now elapsed. He has never required the bougie, and in every respect enjoys the most perfect health.

"In this case, the obstinacy of resistance, and tendency to contract, occurred in an extreme degree. Indeed, the latter peculiarity was so strongly marked, that it suggested the idea of an adventitious elastic texture, or rather one possessing contractile properties similar to those of the middle coat of the arteries. It is plain that the most prolonged use of bougies would not have effected a cure. And the result of retaining catheters in the urethra, shows that this mode of treatment is not so effectual as it has been represented, since it only produced a temporary dilatation. But the most important lesson is to be drawn from the results of the different trials that were made of internal incisions by lancet-catheters. Additional space was thus at once obtained, and the passing of bougies was greatly facilitated, without any lasting difference being effected in the contractile power of the stricture. It hence appears that this mode of treatment affords no practical advantage, since, in the ordinary condition of stricture, bougies accomplish recovery on the easiest possible terms; and in its obstinate form, an internal incision does not prove sufficient to relieve the patient. The reason of this I believe to be, that the obstinate stricture in question requires, for its complete and permanent remedy, thorough division of the firm texture which surrounds the contracted part of the canal." (pp. 13-18.)

The author subjoins ten other cases, in which the operation was performed with the best results. They are the most interesting, and we only regret that want of space precludes us from taking further notice of them. We give in full, however, Mr. Syme's account of the mode of performing this operation; because we regard it as a most important one, and because the details could not be abridged with any benefit.

If the patient has a great dread of pain, and wishes to escape from the slight degree of it which attends the requisite incision, he should be placed under the influence of chloroform—not partially so as merely to suspend his consciousness or impede his recollection of suffering—but completely, so as to prevent any restlessness or unruly struggle which would tend very seriously to increase the difficulty of the procedure. He should then be brought to the edge of his bed, and have his limbs supported by two assistants, one of them standing on each side. A grooved director slightly curved, and small enough to pass readily through the stricture, is next introduced, and confided to one of the assistants. The surgeon sitting or kneeling on one knee, now makes an incision in the middle of the perineum, or penis, wherever the stricture is seated. It should be about an inch or inch and half in length, and extend through the integuments, together with the subjacent textures exterior to the urethra. The operator then, taking the handle of the director in his left, and the knife, which should be a small straight bistoury, in his right hand, feels with his forefinger guarding the blade, for the director and pushes the point into the groove behind, or on the bladder side of the stricture—runs the knife forwards, so as to divide the whole of the thickened texture at the contracted part of the canal, and withdraws the director. Finally, a No. 7 or 8 silver catheter is introduced into the bladder, and retained by a suitable arrangement of tapes, with a plug to prevent trouble from the discharge of urine.

"The process having been thus completed—which it may be in less time than is requirrd for reading its description—the patient has merely to remain quietly in bed for forty-eight hous, when the catheter should be withdrawn and all restraint removed. The urine sometimes maintains its proper course from the first, but more frequently passes in part through the wound for some hours, or it may be a few days. No attention or interference is required on this account, but at the end of eight or ten days a moderate-sized bougie should be passed, and repeated once a week or fortnight for two months. In most cases, the cure may then be deemed complete and lasting. But if the tendency to contraction should have been extreme, or if the patient's way of life should be such as to favour the reproduction of stricture, it will be a prudent precaution to have the bougie passed four or five times in the course of a year, in order to avoid all risk of future trouble." (pp. 41-3.)

In a few subsequent pages, Mr. Syme examines the merits of the various methods recommended in the treatment of stricture. We have already intimated that he holds a pretty strong opinion of the impropriety of the "*caustic plan;*" nor does he seem to think much better of catheters with concealed lancets, for the internal division of the contraction. In these points we incline to coincide with our author; at the same time it is only fair to confess, that we speak without experience of the use of caustics in this disease. "Stafford's instrument" and its various modifications have often appeared to us very useful and efficient; they are not, however, free from danger, nor by any means certain instruments of cure. In all cases we are inclined to regard them as a *pis aller.*

It now remains to notice the operation of cutting into the perineum in search of the contracted urethra, in cases where it is supposed that no instrument can be passed into the bladder. Respecting this operation, little of commendation can be said; it is avowedly dangerous, and differs essentially from the one here advocated, in the circumstance, that in the one case the incision is made without a guide,—in the other, a grooved staff is passed through the stricture. On the whole, then, we are disposed to regard Mr. Syme's operation as a very valuable addition to the resources of our art, and can only tender to our readers the recommendation to make a trial of it, as we ourselves intend to do.

Mr. Syme concludes his little book with a few pages on *Fistula in perineo,* in which he combats the well-known opinion of Sir B. Brodie, that a *fistula in perineo* and a *fistula in ano* are alike the consequences of ulceration of the urethra or of the rectum respectively, allowing the escape of a minute quantity of the contents of the canal into the neighbouring textures. This opinion of Sir Benjamin Brodie has often, and we think justly, been questioned. Mr. Syme alludes to the circumstance, that abscesses which give rise to *fistula in ano* and *perineo* usually originate in firm swellings, becoming sooner or later soft and fluctuating, and when opened rarely giving exit to contents which are quite free from admixture of matter proceeding from the neighbouring canals; and further, that accurate examination with the finger and probe prove that the mucous lining of the rectum or urethra is still quite intact. This statement is certainly a correct one; however, if we come to inquire what has given rise to the abscess, we may in nearly all cases trace it to some irritation within the canal; in the one case to stricture of the urethra, in the other to constipation and sedentary habits. The areolar tissue is notoriously apt to inflame and become the seat of abscess, from irritation which may be seated at a considerable distance from it, and which may not as yet have developed itself so as to become cognizable to the senses. Of this fact we have frequent instances, in the formation of abscesses external to diseased bone; which, on being opened, have no communication with the bone that is the primary seat of the disease, but which speedily form communications and sinuses leading to it. Such cases are, it seems to us, analogous to those under consideration. The abscess in both instances is but the symptom of deeper-seated and far more serious mischief; and, although at first there is no communication with the diseased rectum or urethra, yet the disease now progresses, both from within and from without, and speedily accomplishes such communication. In this sense, then, fistula, both in perineo and in ano, may be said to have its origin within the mucous canal; but this in a very different sense from what is implied by Sir B. Brodie. He distinctly affirms, that "the urethra, constantly teased by the pressure of the urine against it, ulcerates behind the stricture;" and that a "fistula in ano is formed in the same manner, by ulceration of the rectum, allowing the escape of a minute quantity of feculent matter into the neighbouring textures."*

Mr. Syme's account, although different, is still, we believe, not altogether correct. The experience and observation of others will enable them to decide upon the question. As regards the remainder of Mr. Syme's observations on fistula in perineo, they do not call for a detailed notice. He believes that such fistulæ will heal of themselves, when the strictures connected with them are cured. In many instances, simple dilatation with bougies is sufficient; in others it may be necessary to resort to the external perineal incision.

We hardly know what to say of Mr. Wade's book. Of course, in the scope of so many pages, it would be strange if there were not here and there some hints thrown out that may be useful; but we shall make no apology for not wasting our readers' time in going over so "much that is true," and yet very far from new.

The object of the work seems to be, to show that there are very few forms of stricture of the urethra which may not be treated with success on the caustic plan. In fairness to the author, we give his reasons for the employment of this remedy, the list of cases in which it is useful, and the mode of its application. Here are his own words:

> "The potassa fusa appears to me to act beneficially upon strictures:—Firstly, by its dissolvent powers; Secondly, by promoting absorption, and stimulating the congested vessels to contraction; Thirdly, by relieving irritability and inflammation.
>
> "*Method of applying the potassa fusa.* Before using the potash, a bougie should be passed down to the stricture, that its distance from the orifice of the urethra may be correctly ascertained. A small piece of potassa fusa should be inserted into a hole made in the point of a soft bougie The eighth part of a grain is the smallest, and a grain the largest quantity of the potash I am in the habit of using; but it will rarely be necessary to exceed the sixth of a grain. It will be well to make two notches in the bougie containing the potash; one, marking the exact distance of the stricture; the other, an inch beyond; as, very probable, on introducing the armed bougie, the first mark may be concealed within the urethra, from the penis being more stretched than when the measurement was taken. The bougie must be well moulded round the potassa fusa, so as to prevent the alkali from projecting; and it should be so placed, that it may be more applied to the upper than the lower part of the stricture, for obvious reasons. Armed bougies should be well rounded at their points, to guard the urethra from the action of the potash before it reaches the stricture. In very bad cases it may be advisable occasionally to use the potassa fusa in the recumbent position, as it will then not only be best applied to the surface of the stricture, but be most likely to penetrate its texture, which, in old and hard obstructions, is very desirable. The bougie should, of course, be well oiled previous to its introduction.
>
> "To impervious strictures, from three to four are the sizes of the bougies I generally employ when using the potassa fusa; and, to such as are pervious, they should be used of a size or two larger than the obstruction, which the point of the

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* Brodie on the Urinary Organs, p. 17. 1849.

instrument should penetrate. The armed bougie must be rapidly passed down to the stricture, and held against it, with gentle but steadily continued pressure, for one, two, or three minutes, according to the nature of the obstruction, which if very irritable and readily bleeding, the shortest time, or even less, should be at first selected as the most prudent course.

"The periods at which it will be most advisable to repeat the application of the potassa fusa must depend upon its effects and the nature of the cases in which it is used. In many old chronic strictures, I have used the potash advantageously every second or third day; but, in others attended with more irritability, it will be better to allow four days to intervene before its application be repeated. There is, however, one safe rule for our guidance upon this point, which is, never to reapply the potassa fusa until the complete cessation of all irritation produced by its previous application. The potassa fusa should be kept in a phial with a ground-glass stopper. If good, it is extremely hard, and of a blue or dirty white colour. It should not be broken until required for immediate use.

"*Cases in which the potassa fusa may be used with advantage.* Firstly, hard, fibro-cartilaginous strictures, impervious to instruments without the employment of injurious pressure; Secondly, hard stricture of long standing, which, although admitting the passage of a small bougie, bleed freely on its introduction; Thirdly, irritable strictures; Fourthly, spasmodic strictures, not arising from acute inflammation of the urethra; Fifthly, strictures which have a marked disposition to contraction." (pp. 43-6.)

The only form of the disease, then, with which we are familiar, that may not be cured by this remedy, is that arising from mechanical injury. A great number of cases are related by the author, which *got well* under its employment.

But we have not yet done with Mr. Wade. He has imposed upon the public, and has attempted to impose upon us, a book which he calls a Second Edition, but which is not by any means truly a second edition. Struck with a difference, although a very slight one, in the colour of the paper of the two parts of this book, and a certain appearance of *age* which appertains to the first part, a suspicion flashed across our mind which we have taken the trouble to verify by comparison of the first and second editions of this book. A second edition of any work implies that the former edition has been sold and disposed of, and that the public requires a fresh supply; which is in some sense a guarantee that the book is a good one, or, at all events a popular one. What will our readers think, when we tell them that this Second Edition of Wade on Stricture of the Urethra, is nothing more nor less than the old book, with the addition of ninety-eight pages of new printing, if not altogether of new matter, tacked on to the end of it. In fact, Mr. Wade's old performance, which has never sold, has been taken down from the musty shelves which bore the precious burden, and, with the embellishment of a new title-page, a newly-printed preface, and the addition we have before mentioned, has been issued to the world in a new binding, as a Second Edition, greatly enlarged."

We forbear to comment upon this proceeding, on which we leave it to the readers of this journal to form their own conclusions; observing only, that after such an *exposé*, we shall require some other evidence of the benefits of the caustic treatment of strictured urethra, than that afforded by Mr. Wade, before resorting to it on his testimony.

ART. IV.

Mémoires de la Société de Chirurgie de Paris. Tom. I, 1847-9. 4to pp. 664. Tom. II, Fascic. 1 & 2, 1849. pp. 120.

Memoirs of the Society of Surgery of Paris.

IN the First Number of our Review, we introduced to our readers the newly-formed Surgical Society of Paris, and gave an account of the first two fasciculi of its Transactions, comprising about 550 pages of the first of the volumes before us; and we now propose to give a similar notice of the remaining papers which they contain, several of which are of considerable interest.

I. The first of these is a long memoir from the pen of M. Huguier, Surgeon of the Lourcine, upon *Cysts of the uterus, and follicular cysts of the vagina.* While engaged in examining into the intimate structure of the uterus, in 1845, the author discovered two true cysts, occupying the mucous follicles of the interior of the cervix uteri; and since then he has had several opportunities of observing a similar pathological condition. Even our most recent authors do not allude to these productions, although Morgagni (29 and 55 Lett.) does so incidentally. In the work, too, of Bovin and Dugès, such tumours are described and even figured, without their true nature being known to these writers. Many practitioners have doubtless removed these cysts, under the idea that they were polypi or polypoid tumours. The existence of cysts of the vagina has been more generally recognised, cases of such having been related by Lisfranc, A. Berard, Sanson, and Vidal.

Uterine cysts. Various affections may be confounded with these as hollow polypi, formed from the substance of the uterus, and lined with a mucous membrane (a paper on which, by M. Huguier, appears in the present volume, and was not noticed in our former article); vesicular polypi, formed of the mucous membrane of the uterus; false membranes, detached from the uterus, and enveloping collections of mucus, menstrual fluid, &c. The affection to which the author wishes to confine attention, is a membranous, unilocular, closed sac, developed either in the substance of the uterus, or under the mucous membrane lining it internally, or the serous one covering it externally, and containing either mucus or serosity. He reserves for future consideration those small, pisiform, vesicular sacs, which are not unfrequently met with on the os uteri, but whose duration is so much more ephemeral, and whose increase in size is so much less, than that of those now to be described. The cysts situated under the mucous and serous membranes of the uterus requires separate consideration.

Mucous cysts of the uterus. The mucous follicles of the uterus being the essential seats of these cysts, they are only found at some point of the os or cervix uteri, or at all events not above one or two millimeters above the cervico-uterine orifice. Thus they may be extra-uterine, and project more or less into the vagina; or intra-uterine, hidden within the cervix, and arising there, may in the progress of growth mount up in the cavity of the uterus. Like the follicles, too, they may be just beneath the mucous membrane, or be deeply seated in the uterine substance. Their number is variable when seated within the cavity of the cervix (M. Michon met with a case in which there were eleven), but there is usually but one found upon the part of the os embraced by the vagina. Their size may vary from that of a pea or less to that of a small walnut, smaller ones being often associated with the larger. Generally, especially when developed in the substance of the organ, they are spherical and non-pediculated, their base being broad; but when seated just under the membrane, though spherical at first, they may afterwards become olivary and pediculated. The researches of the author and M. Robin on the intimate structure of these bodies show that each cyst has two envelopes, an internal one which is smooth, shining, transparent, excessively thin and very vascular, possessing no epithelium on its internal surface; and an outer one which is composed of elastic cellular membrane, is thicker than the inner; but still transparent, so as only to be clearly seen under the microscope. The fluid they contain is mucus more or less altered. Sometimes it is opaline, and sometimes it contains one or two little grayish or yellowish white bodies which vividly reflect the light. Examined microscopically, it is found to contain a greater or less quantity of molecular granules, and frequently globules of two kinds, those known to pathologists as granular globules of $0^{m}.010$ to $0^{m}.018$ diam., and others smaller (0·005 to 0·008) also containing granules but much more delicate and numerous ones than the others. The uterine tissue surrounding the cysts, and the mucous membrane covering them, are generally vascular, while the cervix uteri is frequently hypertrophied.

The German microscopists range the mucous follicles, with the ovarian vesicles, among the closed follicles; and in fact in such of them as are situated at even a slight distance beneath the mucous membrane, no excretory duct is discernible; and even with respect to many of those situated immediately beneath it, the mucous membrane exhibits neither depression nor solution of continuity. In some of these last, however, an orifice, usually a circular one, is perceptible. As for those follicles which exhibit no trace of orifices, we must suppose either that they have not yet reached their period of dehiscence or maturity, and that their walls are as yet not sufficiently distended with mucus to open, or that their fluid is excreted by transpiration, which its consistence and tenacity, even during life, forbids us to suppose. These submucous follicles, without excretory orifice, when on the eve of getting rid of their contents, especially attracted the attention of Naboth, who compared them to the ovarian vesicles, which once opened, empty themselves and give place to others, which then approach the mucous membrane and at their period of dehiscence rupture it. It is important to remember that these follicles exist, not only as described in books, in the cervix and at the orifice of the os uteri, but also in large numbers on all the portion of the uterus embraced by the vagina; only here they are much less visible, being covered by a thicker and redder mucous membrane and a more developed epithelium. If then the dehiscence or the perspiratory evacuation of these follicles be retarded, they may become converted into mucous cysts, the mechanism of their development being analogous to that of ovarian cysts. Whatever would tend to increase the thickness or consistence of the walls of the follicles, or of the mucous membrane covering them, would favour this; and in most of the patients in whom these cysts have been observed, there has been coexisting inflammation, engorgement, or hypertrophy of the uterus or its mucous membrane. In other cases, uterine catarrh denoted inflammation of the proper follicular structure; and in others, fibrous bodies have produced hyperæmia of the organ. So, too, child-birth would seem to be a very frequent predisposing cause.

The affection being chronic in its nature, limited in its extent, and occupying parts of slight sensibility, its early stages give rise to no appreciable symptom. The locality of the tumour, when within the cervix or at its inner orifice, also prevents its early recognition; and it is only after the cyst has reached some considerable size, that the surgeon detects it. When seated on the part of the uterus embraced by the vagina, or at the inferior orifice of the cervix, it imparts to the finger, owing to its small size, rather a sense of softness and depressibility than of fluctuation. The finger can depress the summit of the cyst with which it is in contact, down to the base of the tumour (which is the case with no other tumour of the cervix); and even a cup-like depression may sometimes be felt in the substance of the uterus. If the cysts are smaller than a common nut, and especially if they are situated more or less deeply in the substance of the uterus, they then feel firm and elastic, and may be mistaken for fibrous tumours. They are not sensible to the touch, unless the neighbouring parts are inflamed, but examination may induce a slight bleeding. Sometimes near the cysts, small, firm projections are felt, like very small peas, which are hypertrophied mucous follicles. When still partially within the substance of the uterus, the cysts exhibit to the speculum merely a little projection of that organ, either of the same colour or rather redder; but when they are more advanced, so as to push forth the mucous membrane, they are still red at the base, but at the apex they are semitransparent, and of a grayish or slate colour, that is, if the mucous membrane is not thickened or congested, when the cyst has a bluish appearance. Those cysts which are seated within the cervix seem of greater consistency, and impart a feeling of elasticity to the finger; but this arises from their compression by the walls of the cervix, and disappears when these have been divided after death.

An altered condition of secretions, as exhibited by uterine catarrh or leucorrhea, is one of the most common functional lesions in these cases. Menstruation, too, is very irregular and too abundant, amounting almost to hemorrhage; and besides the catamenia, the patients are liable to occasional and sometimes periodical losses of blood, occuring either spontaneously or after exertion. Some women suffer much pain and uneasiness, which is not the case with others. When the muco-purulent or sanguineous discharges become frequent or habitual, the general health suffers to such an extent that even death may indirectly result as a consequence of the presence of these bodies. When these general symptoms exist, and do not yield to treatment, and the sensible ones are not ascertainable, owing to the cyst being supposed to be situated very high up in an insufficiently dilated cervix, the author advises resort to forcible dilatation, or even incision of this part to facilitate exploration.

An affection of such slow growth as this, exists long prior to the production of the above general symptoms; and M. Huguier believes, from observing the thinness of the walls of some of these cysts, and from having on one occasion seen a small circular aperture, that an intermission of the symptoms which is sometimes met with may be due to the cysts opening and discharging their contents,again to become filled upon the cicatrization of the small aperture. In the progress of their growth we have seen that they sometimes assume a pediculated form; but any doubt as to their real nature to which this may give rise, would disappear on puncturing them. As a general rule, the prognosis of the affection is more unfavorable the higher up in the cervix, and the deeper in the substance of the uterus, the cyst is situated, and the more narrow the utero-vaginal orifice is; but much depends upon its having become associated with other diseased states of the cervix uteri. The cysts may be operated upon by simple puncture, taking care to make afterwards several incisions in the walls of the sac, and apply solid caustic, which causes no inconvenience. When their form is such as to admit of it, they may be seized by forceps and removed by the curved scissors. M. Melier applied the actual cautery with success; but this is a means which excites too much fear in the mind of the patient to render it advisable, except in the case of several small cysts existing close to the principal one, when by its agency they can all be destroyed at once.

Serous cysts of the uterus. These are of more frequent occurrence but of much less consequence, than the foregoing. Not leading to fatal consequences, they have only been incidentally noticed by pathologists. They are seated in the sub-peritoneal cellular tissue, or even below the cellulo-fibrous and filamentous membrane described by Boivin as uniting the peritoneum to the proper tissues of the uterus; and M. Laugier gave the author a preparation showing that they may become developed even in the proper uterine tissue. They are oftener found at the anterior than the posterior surface of the organ, and are generally sessile with a very large base; but in some cases there is a long neck or pedicle, the cysts then floating in the cavity of the abdomen. The pediculated cysts are found especially towards the fundus, the sesile ones lower down. The size of the cyst varies from that of a millet seed to that of an egg or an orange. They probably reach even a larger size, and perhaps some of the supposed cures of enlarged ovarian cysts by spontaneous rupture have been of this nature. When they are three or four in number, the cysts are usually small. They contain a clear and sometimes a reddish fluid. The proper coat of the cyst, especially of the pediculated, is very thin, polished and shining, and almost epithelial, of the peritoneum even covering it seeming to be thinned. When situated low down, the walls are much thicker. The vascularity of these cysts, unlike those of the vagina and broad ligaments, is rarely considerable. It is very common to find that inflammatory affections of the internal genital organs have preceded or accompanied their development; and especially is this the case with regard to puerperal metro-peritonitis. Frequently in patients who have died from this affection, we find numbers of little cysts containing clear, reddish, lactescent or purulent fluid in the broad ligament and around the ovaries. These are evidently of recent formation, as is seen from the inflammatory action surrounding their number, their small and uniform size, the transparency of their walls, the globules of blood or pus they contain, and the pseudo-membranes accompanying them.

Serous cysts are seldom recognised during life, or they are mistaken for other affections. As long as they do not exceed an egg or thereabouts in size, they may give rise to few symptoms of deranged health. Symptoms of a disorded condition of the uterus, rectum, or bladder, are much more easily induced when the cyst is situated low down, than when it is seated nearer the fundus of the organ, where it is easily mistaken for an ovarian cyst. Great care, too, is required not to confound the affection with a displacement of the uterus; and to this end examination by the rectum is of the highest importance. When the cyst is detected, a simple puncture by a bistoury is indicated, following this, in the case of relapse, by an injection.

M. Huguier relates at great length six cases of the mucous cysts and two of the serous, in which all the difficulties attendant upon them are well set forth, and the pathological anatomy of those which proved fatal illustrated by lithographs.

Mucous follicular cysts of the walls of the vagina. Anatomy demonstrates that in the vagina, as in the case of the uterine and buccal cavities, there are two orders of follicles: the superficial, provided with an excretory orifice, and the deep-seated or closed; and both these may become the seat of cysts. The *superficial follicular cysts* are generally situated at the lower orifices of the vagina, or within half an inch above it occupying especially its anterior and lateral parts; and nowhere are they so frequently found as near the urethra. Generally single, it is not rare to find two or three in the same person. Their size varies from that of hemp-seed to that of a nut; but owing to the ease with which they are broken during menstruation, copulation, &c., they seldom reach beyond that of a large pea. Sometimes they continue unbroken for years, and yet they do not increase in size. They are sessile and roundish and quite transparent, so that the colour of the fluid they contain may be distinguished, this varying accordingly as inflammation or irritation has been present. Whatever its colour, the fluid is always thick and viscous, and sometimes even pultaceous. The cyst consists of two coats, the one being formed of cellular tissue, with some fibres of elastic cellular tissue, and the other being much thinner, smoother, and more vascular, and sometimess lined with epithelial cells. On the inner side of this, the orifice can usually be detected. The *deep-seated cysts* are generally observed at the upper half of the vagina, not far from the cervix uteri, and very rarely at the inferior orifice or within an inch above it. They are seldom multiple, the author having met with only two in the same person in one case out of ten. They may coexist with the superficial cysts. Spheroidal at first, they may afterwards become ovoid, pyriform, or pediculated. They vary from the size of a nut to that of an egg. As long as they are less than a nut they have the same appearance and sensibility as the vagina; but when exceeding that, and become pediculated, they are smooth, shining, and of a grayish white, or very pale rose colour, the upper part of the tumour being rendered more or less transparent by the tension. The sacs are more firm and elastic than those of the superficial cysts, and their contents resemble mucilage in consistence. There is never an epithelial layer observed on their inner surface, as is the case sometimes with the superficial. Vessels are found in their parietes, and upon their external surface.

Pregnancy seems to be a very common predisposing cause. It is always during gestation, or after confinement, that the cysts have been observed by the patient. The deep-seated ones may, especially when not pediculated, be easily mistaken for other affections of the genito-urinary apparatus. The chief guide is found in the uniform softness of the mass, and the sense of fluctuation it imparts to pressure, which yet does not cause tenderness. Passing the finger on, a circular opening at the expense of the vaginal structure is felt, which might readily be mistaken for a herniary aperture, were it not for the elastic resistance offered by the bottom of the cyst. When the patient coughs, too, the displacement which occurs is only that which takes place in all the pelvic contents. Ovarian cysts, or others developed in their vicinity, may in their progress project into the vagina and simulate one of its cysts; but if a puncture is made, issue is given to a far larger quantity of fluid than in the case of vaginal cysts, and to fluid of a different character. Chronic abscess or other collections developed near the vagina may also give rise to error; and a case is related, showing that, even by the best informed persons, the cysts may be mistaken for vaginal cystocele, especially if examined only after parturition has commenced; and, indeed, such a case has recently occurred to a practitioner well acquainted with the author's researches:

> "We must remember that as regards the vagina, two species of vesical hernia may exist; the one formed by the protrusion of the fibro-mucous membrane of the reservoir through the fleshy fibres; the other by the relaxation, dilatation, and descent of all the tunics of the bladder, with a corresponding lesion of the vagina—the vesico-vaginal cystocele, properly so called. The first of these is very rare, and resembles in its size, form, situation, and fluctuation, the deep-seated cysts, and would be more likely to deceive than the other, which differs more in its size, disposition, and large base. Moreover, both descriptions of hernia entirely disappear under pressure. Catheterism generally exhibits the condition of the urine more or less changed; and these herniæ never assume the transparent appearance of the cysts nor do they like these fall of themselves, without any effort on the part of the patient, between the separated valves of the speculum. It is as well to be aware that when the catheter is employed, the pressure of the distended bladder being taken from off the cysts of the anterior wall of the vagina, these are allowed to arise, and apparently diminish in size, in proportion as the urine flows, which may strengthen the practitioner's belief that he has to do with a cystocele. This ascending and retreating movement of the cyst was such in the last case I have related, that the surgeon could not be convinced of its presence until a puncture with an exploratory trocar had been made." (p. 344.)

The mucous membrane, too, covering the cyst is more smooth and less thick than the coverings of a cystocle, as may be ascertained by taking these last between the fingers. A vaginal hernia may much simulate a cyst, but it is characterised by the facility of its reduction, and the impossibility of feeling with the finger the limits of the aperture through which it passed.

Sometimes the vaginal cysts rupture spontaneously and reappear, and at others the passage of the child causes their rupture, sphacelus, and consequent cure. Not only is the affection, when large, inconvenient, by impeding movement and copulation, but, by obstructing parturition or inducing leucorrhœa, inflammation, or prolapsus, it may do much mischief. The superficial cysts should be divided through their entire diameter, and their cavity touched with nitrate of silver; or they may be sometimes excised by the curved scissors. Great circumspection is required in operating upon the deep-seated ones, to avoid injury to the bladder, urethra, or adjacent parts. The projecting portion should be cut away, and the nitrate applied, to prevent reunion and reproduction; but the base, upon which large vessels ramify, should be left.

II. *On dislocation of the lower jaw;* by M. Nelaton.

The generally received theory of luxation of the jaw, founded on the writings of our highest authorities, is, that, once produced, the condyle of this bone becomes placed in front of the transverse root of the zygomatic apophysis; and is maintained there, according to some, by muscular contraction; according to others, by the resistance which the projection of the apophysis offers. M. Malgaigne was one of the first to contest the validity of this hypothesis, and showed the ease with which the condyle could be carried before the tubercle, and returned to its cavity; and that, in fact, this is a normal movement, which any one may effect on himself. M. Nelaton has undertaken some researches upon the subject; and the following is the anatomical explanation of the dislocation which he offers:

"In front of the temporo-maxillary articulation is the temporo-zygomatic excavation, in which the coronoid process is lodged when the mouth is closed. Before and behind this excavation two eminences are found, the posterior being formed by the transverse apophysis of the zygomatic arch, and the anterior by the junction of the malar with the superior maxillary bone. At the lower part of the suture uniting these two bones, a tolerably prominent tubercle is formed, bounded within by the furrow formed by the smooth border of the malar process of the maxilla, and frequently on the outer side by a little, elongated, nearly oval *fossette*, to which we shall have again to refer. This tubercle, which may be called the *malar tubercle*, is about a centimetre distant from the coronoid process; in its place we have sometimes seen a plane surface, or even a more or less deep furrow; but as a general rule it exists.

"The coronoid process also requires our careful attention. In fact, as M. Chassaignac has remarked, in his memoir on the disarticulation of the jaw, this process presents some well-marked individual differences. Thus, in some subjects, it is so short as to scarcely rise to a level with the condyle, but it is in others much elongated. In some it is directed almost directly upwards, and in others obliquely outwards, nearly to the zygomatic arch; sometimes it stretches forwards, far away from the condyle, and at others inclines backwards towards it. ....

"In my experiments upon the dead body, I found—*first*, as already shown by M. Malgaigne, that if the condyle is carried forward, without going beyond the point which the laxity of its capsule allows it to attain, the displacement at once disappears as soon as the jaws are closed, the tubercle of the transverse apophysis offering no obstacle to the retrocession of the condyle; and, *secondly*, if the anterior part of the capsule is cut or torn, so as to allow the condyle to quit it and advance some millimetres, the displacement becomes permanent, not, as is generally believed, on account of the tubercle, or the contraction or tension of the muscles, but because *the extremity of the coronoid process is projected against the lower and anterior angle of the malar bone, and is lodged in the little fossette we have described as often there existing*.

"The contact of the apex of the coronoid process with the malar bone, seems to me, then, to be an indispensable condition for the production of a true dislocation; and to effect this, the displacement need not be very great, for it suffices if the condyle advances three or four millimetres. The external lateral ligament remains uninjured, the capsule being alone torn at its anterior part. The interarticular cartilage accompanies the condyle in its displacement, or remains beneath the transverse apophysis, according to whether the rupture takes place above or below its anterior edge. When the luxation is produced by external violence, the coronoid process probably ruptures some of the fibres of the masseter or temporal, and, becoming lodged in the substance of these muscles, the difficulty of reduction is increased." (pp. 399-401.)

This relative position of the parts has not passed entirely unobserved;

for Monro the elder believed that, when the reduction was not affected, the jaw was gradually raised, until the coronoid process came in contact with the malar bone; and S. Cooper incidentally mentions the same disposition of parts; but neither of them employed the fact in the explanation of the mechanism, the pathological anatomy, or the treatment of the accident. From what has been said, it will be perceived that this dislocation must be a rare one, depending so much as it does upon the size and direction of the coronoid process. When this extends far backwards, the jaw must be thrown forcibly forwards to allow of the contact being produced, and in some subjects its production would be probably impossible. On the contrary, the projection of the process forwards would render the production of the accident easier; and if this disposition were in excess, the luxation might be produced, without any violence, by the sole action of the depressors of the jaw. Such dislocations would be very apt to recur, as, in fact, the history of the accident shows to be the case. The present theory explains the symptoms of the displacement, and the difficulties of its reduction.

Since the paper has been read, several members have communicated cases to the Society, confirmatory of the views set forth in it, and showing the assistance in the reduction of the dislocation obtainable by making pressure below the malar bone. In the 37th volume of the 'Bulletin de Thérapeutique' (p. 404), a case is narrated, that recently came under M. Nelaton's care. It occurred to a lady who dislocated her jaw while yawning, and all efforts at reducing it in the ordinary manner had failed, when M. Nelaton was called to her, thirty-hours after the accident. He passed his index fingers into the mouth, to the anterior edge of the angle of the jaw, and carried them upwards until they reached the coronoid process placed in front of the malar bone. Having ascertained the exact position of parts, he seated the patient in a chair, and placing a thumb against each coronoid process, desired her to open her mouth yet wider, for the purpose of relaxing the elevators of the jaw; employing at this moment a slight backward pressure, he at once reduced the dislocation. In the autopsy of a person dying from other causes, after a recent dislocation of the jaw, the accident was easily reproduced, and the exactitude of the anatomical description confirmed.

III. *On a new mode of treating hospital gangrene;* by M. Debrou.

In 1846-7, this disease prevailed epidemically in the Hôtel-Dieu of Orleans. The hospital had been recently rebuilt upon a very healthy site, its wards being spacious and well ventilated, and the greatest cleanliness prevailing throughout. In the old hospital, with very crowded wards and very defective appliances, the disease was seldom seen. The present outbreak appeared after a very hot summer, and coincided with the admission of a great many cases of dysentery. The subjects of it were generally of a weakly habit and ill-fed; a great number had old ulcers of the legs; and many had been engaged in railway works in a marshy country.

It is not the object of the present paper to give a history of the epidemic, but simply to draw attention to a means of treatment which M. Debrou has found of great efficacy. He does not even pass in review the other means he employed; yet contents himself with comparing the efficacy of his plan with that of the actual cautery, which has hitherto been admitted in France as the best means known of arresting the progress of the affection. Successful as this frequently is, the difficulty of effectually applying it is often considerable, while patients frequently refuse to undergo the necessary repetitions. Moreover, the wound remaining after the separation of the eschar, not unfrequently takes on the gangrenous action. The substitute the author recommends is, the employment of a calefactory apparatus, or "incubation-box," invented by M. Guyot, and constructed by Charrière, of Paris. This is used in France for hastening the cicatrization of wounds, especially after amputation. We are not made acquainted with the construction of the apparatus; but, from the brief account the author gives of it, its advantages seem to consist in isolating the parts to which it is applied from surrounding influences, and the hastening of cicatrization by the maintenace of a continuous temperature of from 92 to 100°, by means of a spirit-lamp. The fluids on the surface of the gangrenous part dry into a kind of crust, which is removed from day to day, the wound being found gradually and sometimes rapidly to improve—a very variable time, from two or three days, to as many weeks, being required to effect the desired improvement. The severe pain produced by the application of the cautery and the subsequent dressing of the eschar is avoided, and a relapse is of far less frequent occurrence. Another important point is the prophylactic agency of this means, even when employed in wards wherein the disease prevails. M. Debrou has employed it advantageously in more than a dozen cases, and six of these are given with sufficient minuteness. The author admits that this number is insufficient to decide the absolute superiority of this means over the cautery, which, at all events, must still continue the principal means in gangrene of the trunk and of other parts to which the apparatus cannot be attached.

II. *On a new form of varicose aneurism:* by M. Auguste Bérard.

As a consequence of a wound implicating an artery and a vein, two descriptions of accident may result. Sometimes the blood passes directly from the artery to the vein, the latter undergoing more or less dilatation —*aneurismal varix.* In other cases, a tumour is formed in the surrounding cellular tissue, into which the arterial blood penetrates,—a canal of greater or less length communicating between the artery and the vein. In some portion of its length, a dilatation is formed at the expense of the cellular tissue, sometimes occupying a part, sometimes the whole of the circumference of the canal—*varicose aneurism.* This last and more rare affection has only been described in a routine manner, one author copying another; so that other varieties of the affection than those recorded probably exist, and it is to one such that M. Bérard here directs attention.

We need not detail the symptoms of the case prior to the operation. It suffices to say, that the brachial artery was wounded during venesection, and the combined symptoms of an aneurismal varix and varicose aneurism having manifested themselves, compression was tried in vain. The sac, a month after the venesection, was laid open, and the upper end of the artery secured. Bleeding still continuing from the lower end, this was sought for, and only found amidst the reddened and indurated cellular tissue with the greatest difficulty, the vein being intimately connected with it.

"I passed a probe through the wound which the lancet had made in the vein, and, on making another attempt to introduce it into the artery, I found that, to do this, I must pass the vein through and through. In fact, this was the disposition of parts; the artery presented on its anterior side an almost transverse wound, occupying more than half of the circumference of the vessel. In front of the artery, and closely attached to it, was the vein, presenting at its posterior side a wound exactly corresponding with that of the artery, and on its anterior side another wound of the same form and dimensions. In front of the vein, and communicating with it through the anterior opening, was the aneurismal sac, which received the blood from the artery only through the medium of the vein. The walls of the vein appeared thickened, especially a little below the opening; and so intimately was it united to the artery at this point, that I found it impossible to separate them, and I included both vessels in the ligature. The blood now ceasing to flow, I again examined the disposition of the parts I have described. . . . .

"Although this disposition entirely differs from all that has been described to the present time, yet it seems to me that the mechanism of its production is easily understood, and is more simple than that of which authors speak. In fact, what is the lesion produced at the time of bleeding? The simultaneons wound of the artery and vein, the latter being pierced through and through. The deeper-seated aperture in it remains open, and is confounded with that of the artery; and, if the other aperture cicatrizes, an aneurismal varix is alone produced. But if the projection of arterial blood into the vein is forcible, the fluid traverses the vein, passes through the other wound, and (the wound in the integuments having become cicatrized under compression) hollows out for itself a pouch in front of the vein, at the expense of the cellular tissue surrounding it. In this manner is formed an aneurismal sac, presenting the symptoms and following the course of false consecutive aneurism, differing from it, however, in the fact that its walls are not formed by the external tunic or cellular sheath of the artery, and that its communication with the arterial system is only indirect. I have said, that the mechanism of the formation of this kind of varicose aneurism is more easy of comprehension than that of the other. In fact, in the case of this latter, we are obliged to admit the existence of a canal intervening between the artery and the vein; but, for the production of aneurismal varix, the attachment of the vein to the artery at the point where the two vessels are wounded, is considered, if not an indispensable, at least a very common occurrence. Now, if, at a later period, a varicose aneurism supervenes, we are obliged to admit, that the two vessels separate from each other, which is not of easy explanation. I am therefore disposed to believe, that this form of varicose aneurism which I have discovered is not a new one, but that it has passed unperceived in other patients; and now that I have drawn attention to it, other dissections will confirm or refute the opinions I have advanced." (p. 455.)

The patient did very well.

V. *On luxation of the jaw upwards into tthe temporal fossa;* by M. Robert.

This case, which M. Robert regards as unique, occurred in the person of a waggoner, æt. 30, who fell from the shafts, so that the wheel passed over the right side of his face. When brought to the hospital, a small wound was observed in front of the angle of the *left* side of the lower jaw; and, amidst much tumefaction and contusion, the condyle was felt just under the skin in the temporal fossa, above the root of the zygomatic arch. The coronoid process remained within the temporal fossa, and the sigmoid notch crossed the lower edge of the zygomatic arch. On further examination, on the *right* side of the body of the jaw, in front of the ramus, a vertical fracture was discovered, accompanied by considerable lateral displacement, the left fragment projecting in towards the mouth. The explanation of the dislocation now became easy. The left side of the head lying on the ground, the wheel had passed over the right side from behind forwards, first fracturing the bone in front of the right ramus, and then, continuing its course, had violently forced the bone from the right to the left, so as to thrust the left condyle into the situation, exteriorly to the zygomatic arch, in which it was found.

The patient was seated on the ground, and M. Robert, placing himself in front of him, pressed the thumb of the right hand firmly from above downwards upon the left dental arch, the fingers embracing the angle of the jaw. The locking of the inner edge of the condyle with the upper border of the zygomatic arch, prevented all efforts at forcing the jaw downwards from succeeding. The thumb was now passed in more deeply, and, by pushing the ramus of the jaw directly outwards, the fingers being still kept at the angle and external surface of the ramus, the condyle, after some effort, became disengaged from the zygoma, and then a little downward traction sufficed to restore it to the glenoid cavity. The fracture became consolidated by the 40th day, and the patient left on the 56th.

VI. *On the evolution of syphilis ;* by M. Cullerier.

M. Cullerier states, that perusal of the works of the older writers on syphilis, meditation on those of Hunter, and observation of the disease, have long convinced him, that there is a greater constancy in the order of the manifestation of the phenomena of syphilis than is generally admitted. The present paper is founded upon 40 cases of tertiary syphilis, observed at the Lourcine ; and he believes these cases, and numerous others not accurately noted, enable him to lay down the following general rule,—

> "That, whenever we see a patient with syphilitic disease of the bones, whether exostosis, necrosis, or caries, or of the fibrous or cellular tissue, as periostosis, *gomme*, or nodes,—affections comprehended under the term, tertiary syphilis,—we always may find an intermediate symptom between the actual disease and the primary sore, which symptom may be a cutaneous eruption, or an ulceration of the mucous membrane of the mouth, and especially of the throat,—the diseases of the mucous membranes then replacing those of the skin, both being, indeed, of the same nature." (p. 479.)

This statement, in its generality, is not, of course, advanced as new. It has been largely developed by Hunter, and forms the basis of the classification of Ricord ; the peculiarity of the author's position being, that, while others have described this as the usual or general course of the disease, he maintains it to be the invariable one. Therefore, he denies the correctness of Ricord's statement, that appropriate treatment of the primary symptom may obliterate the secondary, while it yet allows the tertiary to appear,—a link of the chain having only been removed. He freely admits, that treatment, applied to the primary symptom, may cure the disease ; but maintains that, when it fails to do this, it fails for one order of symptoms as well as for the other, possessing no power to interrupt or invert the order of their occurrence. The subsequent symptoms may become mitigated, but they still persist in their natural order. Several circumstances may deceive superficial observation. Thus, the tertiary symptoms may be more predominant, though the secondary have existed or do exist; and the general uneasiness and pains, often attendant upon the development of secondary symptoms, may be mistaken for the deeper-seated pains of the tertiary form. The course, too, of syphilis may be so acute, that the observer is only struck by the primary and tertiary symptoms, and overlooks the others.

Of the 40 cases here adduced, in 35 the filiation of the symptoms was quite complete. In 4 others, the tertiary were found preceded by secondary, but not by acknowledged primary symptoms; but the author, not admitting the possibility of constitutional without primary syphilis, claims these cases also. In one case, a tertiary was observed during a primary syphilis, without any secondary; but even here there was a condyloma at the anus, which many regard as a secondary symptom. In reference to Ricord's opinion as to the modifying influence of mercurial treatment, it is observed, that, of the 40 cases, 6 had been treated for the primary symptoms only, 9 had undergone treatment for both the primary and secondary, 13 had undergone treatment only for the secondary, and in 4 of these, tertiary symptoms appeared during the treatment; while 12 had undergone no treatment whatever. The fact of so large a proportion as 15 out of 40 having undergone mercurial treatment without arresting the progress of the disease, is confirmatory of the views stated above; and in no one case has the mercurial treatment enabled tertiary to succeed the primary symptoms, without the secondary. So, too, in observations derived from other sources, an enormous proportion of secondary symptoms will be found, in which mercurial treatment was adopted for the primary. Thus, not to cite authors who confound all species of constitutional syphilis under the name of secondary symptoms, reference may be made to M. Martin's essay on Syphilitic Eruptions, in which it is stated, that a majority of these patients had undergone mercurial treatment.

If his views are confirmed by the observations of others, the author believes that two useful ends will be obtained; viz. the assignment of positive laws of a morbid evolution, too lightly regarded as variable and uncertain, and more exactitude in the therapeutical management; for it is well known that certain anti-syphilitic substances, of the greatest use in tertiary syphilis, are of doubtful utility in the secondary, and quite useless in the primary forms.

VII. *On the non-communication of syphilis to animals by inoculation;* by M. Cullerier.

Great interest was recently excited in the Surgical Society, by the exhibition of an ape, upon whose face M. Auzias-Turenne declared he had succeeded in producing several syphilitic sores, by inoculation from a human chancre. This result, which had hitherto always failed in the hands of Hunter and others, he said he had succeeded in producing by keeping the virus in contact with the excoriated dermis, and compensating for the lower irritability of the animal by exciting a certain amount of irritation of the wound. The necessity of any such augmented irritability, M Cullerier regarded as purely hypothetical, while he stated that an experienced eye could detect that the sores on the face of the ape were not chancres, they having, in fact, assumed this appearance purely on account of having been irritated. To make certain, he inoculated five different species of animals, without ever being able to induce the characteristic pustule, and this whether the wound was let alone or irritated. M. Auxias repeated experiments with him on the ape, but with no better success. Moreover, by repeatedly applying nitrate of silver to a non-syphilitic wound, in animals and in man, M. Cullerier produced circular sores, with indurated bases, which deceived even experienced observers.

VIII. *On fracture of the cranium, with discharge of aqueous fluid;* by MM. Robert and Chassaignac.

The occurrence of an aqueous discharge from the ear in fracture of the base of the cranium has lately excited much attention in France; but, as the subject has been much discussed in the periodicals of that country, and in some of those of our own, we shall glance very cursorily at the two papers of the present volume which relate to it.—The first of these is a short one, by M. Chassaignac, endeavouring to explain the occurrence by the fact of the petrous bone being in such close connexion with the various sinuses of the brain, that a fracture of its substance could scarcely occur without opening a communication with the cavity of one of these, the result of which would be, if the aperture were wide, a discharge of blood—if it were fissural, a filtration of its serosity. Among the objections to this view are—first, that the existence of this communication has never been demonstrated in any of these cases; and next, that the composition of the fluid discharged is very different from that of the serosity of the blood, containing much more chloride of sodium, and little or no albumen.—The essay of M. Robert is a much more elaborate performance, in which he takes a review of all the cases hitherto published, from which it results, that in all the fracture has been found to implicate the meatus auditorius internus, the labyrinth and inner wall of the tympanum, and to be attended with rupture of the membrana tympani. In all it has occurred in young subjects, in whom the middle of the petrous bone offers much less solidity than it does in after-life, the cavity of the labyrinth being proportionably much larger. After referring to the various explanations of the source of the fluid offered by others, M. Robert states his own conviction, that it is, in fact, the cerebro-spinal fluid that is discharged from the ear, an issue for which he believes is provided for by a rupture of the prolongation of the membranes of the brain, which enters the internal auditory canal. This view is supported by his having detected such rupture in a preparation of the parts concerned, and by his being able to produce a flow of this fluid in the dead body, by artificially inducing a fissural fracture of the petrous bone. The chemical composition of the fluid, and the very large quantities which sometimes flow away (several drachms per hour), favour the supposition. More recently, two cases of fracture of the bone have occurred, with large aqueous discharges from the *nose*, which M. Robert explains by the rupture of the membranes of the brain opposite the sella turcica. Again, a large aqueous discharge was observed in a case of compound fracture of the parietal bone, the fluid here probably infiltrating through the subarachnoid cellular tissue. The flow of this fluid from the ear or nostril acquires great importance, as indicative of the fact and locality of a fracture of the basis, being almost invariably followed by a fatal result. The facts, in which a very minute examination of the parts has been made, are at present too few for the question to be regarded as other than *sub judice;* but M. Robert's hypothesis is, at least, the most plausible that has been offered, and the details of his paper are well worthy of consultation.

IX. *On depression of cataract;* by M. Gosselin.

The first part of M. Gosselin's memoir is occupied by a critical examination of the procedures recommended by the best writers, from Scarpa downwards, with a view of supplying a somewhat more exact guidance for the young practitioner than now exists. The following is its summing up:

> "It is evident, from all that has preceded, that surgeons are by no means agreed as to the manner in which depression should be effected. We may divide the authors who have written upon the subject into two classes. The one believes that we can and should depress at the same time the unopened capsule and the ens. This is the case with Weller, Malgaigne, and all the surgeons, prior to Scarpa, who made no distinction in respect to the capsule; and with Vidal and Sichel, in capsular cataract. The other class directs us to depress without the capsule, but is divided into two groups,—the one consisting of surgeons, who, fearing the formation of a secondary cataract by the opacity of the anterior capsule, endeavour to remove it from before the pupil; the other, of those who, tearing through the posterior capsule, leave the anterior untouched. To the first of these groups belong Scarpa, Boyer, Sanson, Cloquet, A. Bérard, Sichel, Velpeau and Mackenzie, &c.; to the second, only Petit, Ferrein, Pellier, and, among our contemporaries, Malgaigne. Thus, the great majority of authors are in favour of tearing up the anterior capsule; but then come the different modes of executing this. To endeavour to remove a portion of the difficulties which present themselves amidst such differences of opinion, I shall conclude by examining the three following questions. What should the surgeon have in view when he proceeds to depression? Which is the best mode of procedure? What are the results he must expect." (p. 651.)

1. *What is the object the surgeon should have in view?* According to the author's opinion, he should attempt to depress the lens alone, for the simultaneous depression of it and of the capsule is well nigh impossible. The capsule of the lens adheres to it very slightly, while its thin posterior layer is firmly united to the anterior surface of the vitreous humour and the ciliary body, which, again, is in close union with highly important parts. It is possible, as stated by Sichel and Vidal, that, in its opaque condition, the capsule may become more firmly united to the lens and less so to the ciliary body; but, as far as the author's investigations have gone, they do not confirm this view. Still, this simultaneous depression seems possible in some cases, as Soemmering, Lallemand, and Mackenzie relate cases in which the lens has been found in its capsule long after depression had taken place; but even these cases may have been inexactly observed, and the covering of the lens obtained from the vitreous humour, or the capsule left partially *in situ.* How, then, is the surgeon to act, in reference to the capsule? First, he must distinguish between the posterior and the anterior. The former is torn by the passage of the lens through it; but the anterior, not being so torn through, should be opened. Some portion of it will then be plunged with the lens into the cells of the vitreous humour, or may pass into the anterior chamber and become absorbed, but the principal part usually retains its adhesions at the periphery, and, shrivelling up, is withdrawn behind the iris.

2. *Which is the best mode of operative procedure?* If the posterior

capsule were capable of impeding the displacement of the lens, its preliminary rupture, as recommended by Velpeau and Mackenzie, would be desirable; but such not being the case, doing this only prolongs the operation. Simple pressure of the needle on the lens will suffice to rupture the anterior capsule, but does not make a sufficiently large aperture corresponding to the size of the pupil; and, in consequence of the difficulty of acting on the capsule after the lens is displaced, the aperture in the capsule should be made before this, when it is easily effected. It should be made from behind forwards, as it results from the author's observations that it is thus rendered much more effectual and much less endangers the iris, than when the needle is carried between that membrane and the capsule, in order to penetrate the anterior surface of the latter. Thus, the operation is divisible into four stages:—1. The introduction of the needle at four or five millimetres from the cornea. At this point the author maintains, as the result of repeated examinations of the parts, and contrary to the opinion of most surgeons, that the retina is not penetrated by the instrument; frequent admeasurement having shown him, that its anterior termination is six or seven millimetres, at least three lines, from the junction of the sclerotica with the cornea. 2. The sliding the needle, with its concavity backwards, to a level with the pupil, it being visible even behind an opaque capsule. 3. The penetration of the capsule and the execution of a number of upward and downward movements, to secure a sufficiently extensive rupture. 4. The depression or reclination of the lens. If, after this, a portion of opaque capsule is found obstructing vision, we should endeavour to complete its detachment, but it is rare to succeed in so doing.

3. *What are the results the surgeon may expect?*

> "It is not my intention to enumerate the various accidents which may follow this operation. I wish only to insist upon one point, and that is, even supposing all the consequences to be as simple as possible, yet it is rare to obtain complete success. In fact, although I have indicated the procedure best adapted, in my view, to remove the capsule from before the pupil, I nevertheless repeat, the surgeon is never certain of attaining this end. It will frequently happen, that some opaque portions remain, or become opaque consecutively. It may even happen, that certain shreds, after having been curled back towards the periphery, gradually reappear in the centre; and in all such cases we have behind the pupillary aperture a capsular cataract, sometimes a complete, but generally an incomplete one. The surgeon must, in fine, think himself fortunate, especially in the case of capsulo-lenticular cataract, if he obtains only partial success, that is, vision embarrassed by some of the shreds of the capsule. Most certainly this operation is sometimes attended with complete success, and I have seen examples of it; and all I say is, that such cases are rare, and that the young surgeon must never too much count on them. In this respect, depression is inferior to extraction. By this last, the pupil is far better cleared of the anterior capsule, because this has been more completely opened for the passage of the lens through it. I do not mean to say that it would be preferable in all cases to depression. On the contrary, I know that depression, in spite of its imperfections, is sometimes imperiously demanded by circumstances. Moreover, my object is not to draw any parallel between the two operations; and I content myself with expressing my opinion, that, as far as the manual procedure is concerned, the surgeon in general, in extraction, does what he wishes; while, in depression, he only does what he can." (p. 661.)

M. Gosselin touches briefly upon one other question, viz. whether the lesion of the vitreous humour by the needle does not induce some peculiar change in the nutrition of that body, and a sufficient disturbance to interfere with vision. His attention has been directed to this point by observing cases in which the vision continued defective in spite of the pupil being perfectly clear, and by the results of some post-mortem examinations he has made. These exhibited a conversion of the normal transparency of the vitreous humour into a greenish or opaline hue. It is true that this changed condition of the substance is also explicable by supposing it to have commenced prior to the operation, and to be due to the same cause which rendered the lens opaque. The author wishes to call the attention of observers to the question whether such an opaline colour of the vitreous humour often accompanies cataract, and whether it is found after extraction, as well as after depression. In experiments upon dogs, he has produced more or less approach to this changed condition by disturbing the relations of the humour, by means of a needle.

Besides those which we have noticed, this volume of the Transactions contains three or four papers of minor importance. Taken as a whole, it is a very creditable production.

The portion of the second volume already published, contains some papers of interest. The first of these, by M. Loir, is a case of

Uterine polypus passing through the abdominal parietes. It is regarded both by M. Loir and by M. Huguier, who was appointed by the Society to report upon it, as *unique*, only three others which bear the least resemblance to it being known to them. The first of these is related by Roux, in his Memoir on Fibrous Bodies of the Uterus, and in it the polypus wore an opening through the upper and posterior part of the vagina, and became lodged between that canal and the rectum. In the second, related by A. Bérard, after the tumour had traversed the posterior wall of the vulvo-uterine canal, it was expelled through the perineum. In the third, a case of Lisfranc's, the polypus perforated the recto-vaginal septum, and made its way into the gut. In all these cases, the thickness of tissue that had to be traversed was inconsiderable.

The subject of the present case was a laundress, æt. 51, having a strong constitution. At 46 the menses had become arrested, to reappear irregularly two years after, and to be replaced with metrorrhagia, for which she underwent various treatment before she came under M. Loir's notice, May 12th, 1847. Her general health was then as yet unaffected. On examination, the womb was found considerably enlarged above the pubes, while a soft polypus mass was felt at the upper part of the vagina. This last came away while it was attempted to pass a ligature around it, and the profuse hemorrhages, to which she had been liable, ceased. The cervix was found healthy, but through it another tumour could be felt, and the bulk of the uterus had not diminished. On the 19th of June, pains of a character indicative of uterine action set in, but instead of the os dilating, it closed so that the finger could no longer be passed through it. At the same time the tumour of the abdomen became more prominent just above the pubes, and the skin covering it reddened. The digestive organs were now disturbed, and febrile action was set up. During the next fortnight eschars were formed, a purulent sanies flowing as they became detached, and suppurating *engorgements* extended towards the iliac fossæ. By the 8th of July the detached eschars had exposed a blackish substance, equal to two fists in size, and accompanied by an intolerable gangrenous smell. On the 14th the most protruding portion of this was removed; but the woman continued sinking until the 31st, when she died.

At the post-mortem, thirty hours after death, the aperture was found to be nine centimetres long by seven broad, and through it a pediculated tumour, still as large as a fist, protruded. The uterus, as after the Cæsarean operation, was found adhering by solid cellular substance on its entire anterior circumference to the aperture in the abdominal parietes. No effusion or false membrane was found in the peritoneal cavity, and the epiploon loaded with fat seemed to play a great part in forming the adhesions between the uterus and the parietes. The cellular tissue in the femoral and iliac regions was infiltrated by pus, and was in part gangrenous. The muscular structure of the uterus was found remarkably developed and contracted as after delivery, except at the anterior wall which was much thinner, and in the substance of which an irregular aperture, six centimetres in diameter, was traversed by the polypus, the pedicle of which was attached to the left side of the anterior portion of the organ. The pedicles of two other polypi were also observed, but otherwise the internal surface of the organ was healthy. The author regards the hypertrophied contracted portion of the uterus as having operated actively in expelling the polypus through the thin and passive anterior portion.

In commenting upon the case, M. Huguier objects to the author's explanation of the passage of the polypus through the agency of the contractions of the hypertrophied portion of the uterus. For this to avail, the tumour must have originated in some other part than the very walls of the organ itself, whereas, in fact, it was formed at the expense of the entire left portion of the anterior uterine wall, leaving unaffected only the superficial layers, a fifth of its substance at most. We cannot say that the mass was thrust from the interior of the uterus outwards, traversing the anterior wall, since it was this wall itself, degenerated and hypertrophied, that constituted it. M. Huguier offers the following explanation of the occurrence. In point of fact, the intimate blending of the two pedicles showed that the polypus that was removed by the vagina, and the polypus that traversed the walls of the abdomen, were but two lobes of one and the same structure. One of these lobes extended towards the cavity of the uterus, and was removed; the other extended towards the vesico-vaginal cul-de-sac, distending, ulcerating, and even mortifying the superficial layers not implicated. After the removal of the vaginal portion, the other, no longer kept down by this, took on a more active development towards the pubes, and the process of its elimination commenced.

On complete femoro-tibial dislocation forwards; by M. Deguise, Jun.

The case which gave rise to this paper occurred in the person of a tall, muscular woman, who, while carrying a heavy burthen on her shoulders, fell with it, no exact account however being attainable of the position of her leg. She felt a violent pain and heard a cracking sound in her left knee, and found herself unable to walk. The author, happening to be at hand, saw her immediately. Shortening of the leg for about three inches was observable; and on the right and left of the patella, which was thrown a little backwards, two well-marked depressions existed, that permitted, without the least difficulty, the whole extent of the tibial articular surfaces to be felt. Behind, an enormous tumefaction, due to the presence of the femoral condyles behind the tibia, was perceived. The external condyle was seen just under the skin, which at one point was slightly eroded, as if from thinning owing to its pressure. The inner condyle could also be easily felt, but was covered by a greater thickness of the soft parts. The hollow of the ham had disappeared, the condyles and calf seeming continuous.

Reduction was accomplished on the spot. The woman was seated on the edge of a table, and extension in a straight line made at the lower end of the leg by some of the bystanders, while others steadied the pelvis. The author then placed his knee behind the lower extremity of the thigh, and having his hands interlaced behind the upper end of the leg, by making firm pressure with the thumbs in front of the tibia, replaced the bone with a facility he was far from anticipating. All went on well. In less than a month the woman was following her laborious life, nowise lame, the only difference detectible on the part of the injured limb, when examined a twelvemonth after, being a rather too great mobility of the patella.

This accident generally terminating favorably, few opportunities present themselves of examining the anatomical condition of the parts implicated. The only cases known to the author, in which these are recorded, are reported by Bucquet, in the 'Bulletin de la Faculté de Médecine,' tom. v, p. 318; by Stewart and Ballingall, in the 3d vol. of the 'Edinburgh Medico-Chirurgical Transactions;' and by Velpeau,—this last occurring in the person of the celebrated Benjamin Constant, who dislocated his knee a twelvemonth before his death. M. Deguise has, however, performed a great variety of experiments on the dead body, the results of which are sufficiently constant to enable him to state,—1. That, although he has sometimes seen fragments of bone torn off at the points of attachment of the lateral ligaments, he has never met with *fracture*, properly so called, as related by Stewart and Bucquet. 2. The *cartilages* of the displaced bones usually retain their polish, but are sometimes slightly eroded. 3. A distance of from three to five centimetres separates the level of the articular surfaces. 4. The *capsular ligament* is largely torn posteriorly. 5. The *crucial ligaments* are always ruptured, and generally near their superior attachments. 6. The *lateral ligaments* present remarkable differences, even when the experiments are performed precisely in the same manner. On one occasion, both were found uninjured. The most frequent occurrence is, for the internal to remain intact, and the external to become in part detached from its femoral attachment. A third case is, for the internal to become torn through near its femoral attachment, while the external is in part detached from the femur. Lastly, the external lateral remains intact, and the internal is torn from the femur. 7. The *muscles* in the vicinity of the joint undergo extensive lesions. The popliteus is always torn, and that in its fleshy portion. In Stewart's case, the tendon was torn near its insertion in the femoral tuberosity. The semi-membranosus is usually torn through a third or two thirds of its substance, the membranous portion escaping. The gemellus internus is thrown into the intercondylian hollow, and appears as if its muscular fibres had been purposely separated from its aponeurotic portion. The gemellus externus is less torn. 8. In Bucquet's case, the popliteal *vessels* remained intact; in Stewart's, the two internal coats of the artery were ruptured, and the vein was uninjured; in Ballingall's, the popliteal vessels were torn across; in all three, the *nerves* were entire. In his experiments, M. Deguise has found, also, the nerves always uninjured, and has only once met with rupture of the vessels. 9. The *skin* of the popliteal region is sometimes penetrated by the condyles. This was so in the cases related by the three authors just named.

Etiology. All the cases recorded have occurred in the adult; and the author's attempts experimentally to produce the dislocation in children, have only torn off the femoral epiphysis. The particulars given of the cases which have been published show that the accident has always resulted from the operation of great external violence; but they are too little detailed to explain in what manner the luxation has been produced. Its production, by forcing the thigh and leg in opposite directions (as supposed by Boyer), is impossible, unless a prior flexion of the leg forwards has ruptured the crucial ligaments. In this way it is easily produced; and the author is surprised at M. Malgaigne's statement, that he was not able to produce a complete luxation without a preliminary section of these ligaments.

Symptoms. The limb is shortened; but it is much more so apparently than really, for in the author's experiment this only occurred to the extent of from three to five centimetres. In the living subject, however, the shortening may be much increased by muscular contraction. The leg, preserving its natural axis, forms in general a slightly obtuse angle with the thigh, and is endowed with great mobility. The circumference of the limb is remarkably augmented, the ensuing tumefaction often increasing the antero-posterior diameter additionally. The tibia projects in front of the condyles, and the patella is applied by its posterior surface to the middle of the articular surface of the tibia, a rounded depression existing on each side of it. Above the patella, a semicircular depression is observed. Behind, the popliteal space has disappeared, the condyles being scarcely separated from the calf. The skin is enormously distended by the condyles, and sometimes even ruptured. In some cases the pulsations of the artery were very sensible; but in others they were not to be felt.

The above signs render the recognition of a complete dislocation easy; but the question presents itself, can an *incomplete* luxation present itself, and if so, how is it distinguished from the complete. M. Velpeau denies the possibility of incomplete dislocation in the antero-posterior direction, while M. Malgaigne declares that incomplete are as frequent as complete, and that in fact there does not exist a perfectly conclusive case of the latter. He considers that no case can be regarded as complete, unless the patella is lying on the articular surface of the tibia. That this sign indicates complete dislocation, is true enough; but it is going too far to say that the luxation never exists, when this sign is not present or is not observed. Thus in the case communicated to Sir A. Cooper by Toogood, the tibia, fibula, and patella were driven up in front of the thigh, the femur occupied the upper portion of the calf, and the internal condyle nearly perforated the skin. The case related in the present paper is one in point. The woman was examined while sitting on the edge of a table, her leg, hanging down but not touching the floor, being flexed on the thigh when left to its own weight, and the patella showing a tendency to turn upwards by its cutaneous surface. It certainly was not lying on the articular surface of the tibia, although it probably would have assumed that position had the patient been lying horizontally. In his cadaveric experiments the author constantly found the position of the patella different, accordingly as the limb was lying horizontally or was pendant.

Prognosis. Most of the older authors were so alarmed at this accident, that immediate amputation was resorted to. At the present day this would only be thought justifiable in the rare cases of rupture of the popliteal artery, a very large wound, or crushing of the articulation. In simple dislocation the case usually progresses satisfactorily, a cure resulting in one or more months. Generally no permanent ill effects remain; but in some cases a degree of lameness always continues, in all probability from the patient having commenced using the limb too soon. It is not until after three or four weeks, that the surgeon should commence gentle flexion of the knee.

A case of communication between the brachial artery, and the deep-seated veins at the bend of the arm; by M. Follin.

M. Follin, believing that surgeons have much overlooked this variety of aneurism, their attention being confined to the intercommunication of the artery and superficial veins, relates the following case:

Ch. Morechal, æt, 25, a turner, was bled on the 12th July, in the right median-basilic, this being the only vein sufficiently developed. The lancet passed in deeply, giving rise to severe pain, which the patient accurately desribed as following the course of the median nerve. Arterial blood followed, requiring firm pressure to arrest it. A small tumor formed over the seat of the venesection, but by the use of cold applications subsided in a fortnight. The man found his arm very defective in strength, but was not aware of anything amiss, until,having again entered the hospital for pneumonia, he was on the point of again being bled in the same arm, when the signs of arterioso-venous aneurism presented themselves. A careful examination of the arm by MM. Bazin and Nelaton furnished these results. 1. The median-basilic vein was found well developed, and exhibited two cicatrices, one from the bleeding in question, and the other from one performed at a remote period. 2. At first sight nothing abnormal presented itself in the region; but on gently traversing it with the hand, a small, deep-seated, indistinct nodosity, could be felt on the inner side of the tendon of the biceps, situated a little above the cicatrix in the vein, and slightly projecting during extension of the limb. 3. An elevation of the bend of the arm, isochronous with the beating of the pulse, and extending over about 2 centimetres, could be felt, and by looking at the region from one side, could be seen: it disappeared when the brachial artery was even slightly compressed. 4. At this point the finger felt a strong characteristic *frémissement*, which was even to some extent perceptible at the middle of the forearm. Behind this the arterial pulsation was felt, and that more strongly than on the opposite side. On passing a fillet just above the bend of the firm, but without arresting the arterial circulation, a deep-seated, soft, fluctuating and slightly expansible tumour was developed, which was the seat of a very slight *frémissement* without any *bruit de souffle.* The *frémissement* disappeared, however, if greater compression was used; while as the fillet was loosened the *frémissement* reappeared, to be presently followed by a *bruit de souffle.* 5. On applying the ear, a susurrus and double *bruit de souffle* were heard. These sounds were heard to some extent even in the subclavicular region, and at the lower portion of the radial artery; and they were painfully audible to the patient when he lay with his hand behind his head. 6. The superficial veins were the seat neither of dilatation, pulsation, or *frémissement.*

The conclusion drawn from the above circumstances was, that the communication existed between the artery and one of its satellite veins; and as the man required bleeding on account of the pneumonia, the median-basilic was opened at the cicatrix which had resulted from the unfortunate venesection. The blood did not issue in jets, and was of the ordinary venous colour, and the stream was easily arrested. The diagnosis was thus experimentally completed.

M. Follin refers to two other cases as illustrating the subject. The first is related by M. Voillemier in the 'Bulletin de Thérapeutique," for 1843. After venesection, the arm of the patient became infiltrated with a large quantity of blood, which was gradually absorbed. A month afterwards, a flattened tumour, the size of the hand, and pulsating isochronously with the arteries, was observed at the bend of the arm. No dilatation of the superficial veins occurred. The brachial and afterwards the axillary were tied, and in consequence of other bad symptoms the arm was amputated. On examination, the superficial veins were found undilated. The anterior wall of the artery was destroyed to the extent of a centimetre, and on its inner side was a large satellite vein, almost as large as itself, and having its external and anterior wall destroyed—both vessels communicating freely with the aneurismal pouch. In reference to this case, M. Michon (reporting on M. Follin's paper) declares that during life great difference of opinion prevailed among competent authorities as to its nature; while, when the parts were exhibited to the Society of Surgery, they were in so gangrenous a state that nothing certain could be deducted from their examination.

In another case related by M. Pouydebat, there was evident intercommunication of the artery and the superficial veins, as shown by the symptoms; while after death there was also discovered a communication, by means of a canal about an inch long, between the artery and the vena brachial profunda. Thus, then, it would seem there are two forms of intercommunication of the brachial and its satellite veins; one in which it is the only one; and one in which it exists simultaneously with a communication with the superficial veins.

Varicose tumour of the scrotum, with suppuration of the veins of the pampiniform plexus; by Dr. Escallier.

The cases upon which Dr. Escallier bases his remarks are of great interest. The first occurred in the person of a black man-servant. With a scrotal tumour presenting some of the signs of hernia, there were obstinate vomiting, and great constitutional irritation. He died the day after admission; and on examination, a firm tumour about the size of a small hen's egg was found in the scrotum, joined to the testis by a fibrous cord, eight centimetres long, and two or three broad; while from its upper part another fibrous cord, about the size of the little finger, passed through the inguinal ring without distending it, and could be traced in the abdomen along the upper aperture of the pelvis and the left side of the spinal column as high as the kidney. The tumour on incision gave issue to blood and reddish pus, exhibited a great number of lobules, some of which were empty, and others filled with coagula, and was lined with a membrane resembling the coat of a vein in a hypertrophied state. These little cavities, some of which communicated with each other, wese united together by a very compact cellular tissue; and the whole cellulo-vascular mass was enveloped in several layers of condensed cellular tissue, the most external of which assumed a fibrous character. On examining the fibrous-looking cords which united the tumour to the testis and passed into the abdomen, these were found to consist of numerous veins, massed together by cellular tissue, and enveloped in several tunics of fibro-cellular tissue. Some of them were distended with more or less firm coagula, some were still patent, and in communication with the interior of the tumour, and others contained pus. After macerating the tumour in cold water for two days, its formation by circumvolutions of enlarged veins, communicating with each other through small orifices, was rendered very evident. No other lesion was discovered.

In the second case, a Brazilian merchant had suffered for twenty years from a scrotal tumour, which had always been considered a hydrocle. During a viet to Paris, he was seized with the symptoms of strangulated hernia, which MM. Roux and Velpeau believed were due to strangulation within the abdomen; and died on the fifth day. On incising a tumour of the size of a fowl's egg, which was found in the scrotum, a large quantity of reddish pus issued forth; and the substance of the tumour was found to consist of a great number of interlaced and convoluted veins, having their parietes much hypertrophied, and separated from each other by cellular tissue,—the general aspect of the section being similar to that of a sponge. The tumour, nearly adherent to a perfectly healthy testis, diminished in size as it approached and traversed the inguinal ring, add was prolonged within the abdomen, lying like a small intestine against the spinal column, until it reached the third lumbar vetebra, when it spread out into a disc, ten centimetres broad and four thick, that reached even as far as the diaphragm. The veins constituting this abdominal portion contained much less pus than did those of the scrotal portion, coagula of different consistency obstructing the calibre of most of them.

Judging from the mere section of these tumours, M. Escallier observes, we might compare them to erectile tumours with a large predominance of cellular tissue, or to certain hemorrhoids described by Andral as constituting the fifth and sixth variety; but, after maceration, it is found that there are no communications between the veins and the areolæ of the cellular tissue; the veins, however, freely anastomosing with each other.

Seeing that both these cases occurred in South Americans, and that the best European surgeons are unacquainted with similar ones, the author inquires whether climate might not have had some influence in the production of chronic inflammation, which brought about this gradual transformation of the varicocele. However this may be, these tumours when once formed may become the seat of acute suppurative inflammation,—an occurrence rarely, if ever, met with in ordinary varicocele. The inflammation in these cases was primary, and not secondary to strangulation, for the ring in both subjects was quite free. The *diagnosis* of this affection is involved in great difficulty, for the appearance, the partial return by the taxis, and the reproduction of the tumour by coughing, &c., furnish the signs of a combination of varicocele with omental hernia, so that the best surgeons may be deceived. When acute inflammation supervenes in the part, then we may have many of the signs of stragulated hernia present; but a close examination may prevent the ill-consequences which would result from these being considered conclusive. Thus, the tumour has an irregular surface, but not the tension and elasticity of a hernia; the ring is free; the abdomen is painful, especially on the left side, but is not distended; the constipation may be sometimes overcome, and the vomiting may commence before other signs of strangulation are present. The tumour offers the characters of an inflamed, rather than of a strangulated part, and the general symptoms (except the stercoraceous vomiting) are common to all the inflammations of the abdominal viscera.

M. Monod, in his report upon this paper, observes, that he believes the tumours in question are of a similar nature to the hemorrhoidal varices described by M. Andral as his fifth variety. It is probable, in fact, that M. Andral mistook for newly-formed separations the folds which resulted from the convolution of the veins. In reference to the symptoms of strangulation, he observes:

> "We are surprised that M. Escallier has not approached the interesting question, which at once presents itself to the mind, as to how phlebitis operates to give rise to symptoms of strangulation. We think these facts may be compared with those in which the inflamed and enlarged spermatic cord becomes compressed by the inguinal ring. It is well known that symptoms of strangulation thus produced have several times been mistaken for those of strangulated hernia, and have yielded to incision of the ring. It is very possible that the fibrous covering which unites the veins of the cord together, probably with some nervous filaments, may act like the inguinal ring does in inflammatory strangulation of the cord; for the fibrous covering not yielding to the expansion produced by the inflamed veins, may very well produce a similar constriction." (Vol. ii, p. 86.)

Speaking of the treatment (active antiphlogistic) recommended by M. Escallier, when acute inflammation is set up, M. Monod says:

> "While approving of the principle of the treatment laid down, I must confess that I attach but a very moderate degree of importance to it, having the sad conviction of the powerlessness of art in face of so complicated and so rapidly fatal an affection. It is to be remembered that we have to do with the suppurative inflammation of a great number of veins, to which the complication of strangulation is added. In the absence of this last, I should advise, besides antiphlogistic treatment, large doses of the *tincture of aconite* from the commencement. When patients die four or five days (as in one of these cases) after the commencement of a phlebitis, metastatic abscesses are not found; but we should greatly deceive ourselves in thinking that purulent resorption had not taken place. The blood has undergone change, but such change has not had time to determine those visceral disorders which are developed when life is more prolonged. Hence the necessity of combating the resorption from the commencement of the disease; and to this end the tincture of aconite is, beyond all contradiction, the most efficacious means we possess." (Vol. ii, p. 87.)

In spite of all that has been written on the subject, the history of the various forms of varices is as yet incomplete; and, as a contribution towards it, M. Monod relates the particulars of a case that came under his care. A woman consulted him for a soft, indolent fluctuating non-pulsating tumour, superficially situated in the right carotidean region, a little below the larynx, which had slowly reached the size of a patridge's egg. Endeavoring to extirpate it, he found it firmly adherent posteriorly to a kind of root, so that he was obliged to content himself with evacuating the serum which the cyst contained and excising its free portion. In the process of healing, hemorrhage after hemorrhage occurred, and the wound took on a bad aspect. The wound was laid open, and a perforation found in the anterior part of the internal jugular vein. The vein was tied in two places, and the hemorrhage arrested; but the patient died exhausted next day. The edges of the aperture were found softened and thinned; and, as this effect cannot be supposed to have resulted from the few days' suppuration that had occurred in the cyst, the author believes that the cyst itself was developed at the expense of the anterior wall of the vein—an ampullar varix of this vessel being, in fact the point of departure. Varices of the jugular are, however, very rare. Morgagni says, that he has met with some examples; and Cline found this vessel forming a sac, upon the posterior surface of which was a groove, for the lodgment of the carotid. Hodgson, in his 31st case, speaks of the sac of a virax, analogous to that of an aneurism. Briquet gives the name of globular varices to such tumours; and M. Bonnet has recently related a case, having some resemblance to that of M. Monod. An indolent fluctuating tumour, the size of a hen's egg, was observed on the thigh; and, during an attempt at removing its deep-seated portion, a large stream of blood flowed out, which, on examination, proved to arise from the cavity of the cyst being in communication with the vena saphena interna. Such tumours, at first soft, fluctuating, and reducible, afterwards become hardened and filled with coagula; changes analogous to those which sometimes take place in hemorrhoids. M. Andral has seen a varicose external jugular vein communicating through numerous minute apertures with little cavities hollowed out of the surrounding cellular tissue, which may then undergo various changes. The production of cysts in this way may be readily conceived, inasmuch as a deposit of blood not unfrequently gives rise to them. In M. Monod's own case, probably the bottom of the cyst was only separated from the cavity of the vein by some coagula, which the suppurative process dislodged.—From all that has been said, a practical conclusion may be drawn, viz. that, whenever an encysted tumour is developed in the vicinity of a large vein, we must always bear in mind the possibility of its connexion with the vessel, and avoid opening it if it seems to extend into the cellular tissue surrounding the vein. If, for some urgent reason, the closure of the cyst is required, the iodine injection may be resorted to.

On Syphilitic sarcocele, and its effects on the testis and on virility; by M. Vidal.

In this paper, M. Vidal draws attention to a very important subject:

> "The testis attacked by what is termed syphilitic sarcocele, undergoes great modifications in its structure. It may pass into a fibrous condition, may become cartilaginous, or calcareous salts may even be deposited in its parenchyma, but the predominant change is atrophy. The nutritive power of the organ has become enfeebled, and, after recovery, it remains weak and small. But general as is this result, observation does not sanction those who would represent it as always

necessary one. When the atrophy is considerable, and both testes are the subjects of it, as unfortunately occurs sometimes it is equivalent to castration. I have been consulted by one of our *confrères*, who, under the syphilitic influence, found the testes, so to say, melting away, until a portion of the epididymis on each side was all that was left. These were inordinately sensitive, and impotence was complete. It is more frequent to meet with cases, in which the testis is somewhat reduced in size and misshapen, and is possessed of an unequal consistency.

"The diminution of virile power is by no means always proportionate to the loss of size the testicle has undergone from syphilis. Thus, we may see persons who are incapable of erection, or who can only emit a small quantity of a very fluid semen, who yet have scarcely any diminution in the size of the testis. Much will depend upon the age of the subject, the use or abuse he makes of the remaining virile power, and the state of the mind. In respect to this last, very melancholy facts are observed, especially in the classes of society which can understand the effects of atrophy of the testis on virility. All the consequences of the disease have been explained to them, and they believe themselves the victims of an impotence, of which frequently, in point of fact, they are not the subjects. They dare not marry, believe themselves lost men, and live in a state of complete and desponding celibacy. If, for some family reasons or other exigency, they venture to contract marriage, the courage they had mustered abandons them at the critical moment. I knew an actor in such a scene, who afterwards became a father, having convinced himself that, by undergoing suitable treatment, the syphilitic testis might be cured.

"For my part, not only do I not believe that such atrophy is a necessary result of a syphilitic testis, but I know facts, which assure me that a testis affected with syphilis may, after suitable treatment, regain all its pristine vigour, and be completely repaired in anatomical and physological point of view. A rare case is sometimes met with in the which the syphilitic influence induces, in the same individual, atrophy of the one testis and hypertrophy of the other." (Vol. ii, p. 94.)

M. Vidal has already published, in his work on Surgery, a case showing that virility may survive a most severe syphilitic disease of the testis. In this case, after due treatment with the iodide of potassium (the patient having already had the other testis removed, from a mistaken belief in the malignancy of the disease), the man became much addicted to venery, and has presented himself since more than once for treatment of gonorrhœa. In another case, the subject of it had one testis that never became developed, and yet, after cure of the syphilitic one, the generative power continued complete. M. Vidal relates, at some length, a case in which one of the testes became atrophied, and the other hypertrophied, under the syphilitic influence. Iodide of potassium, in doses of two grammes per diem gradually increased to six, served to reduce the hypertrophy considerably: the testis always, however, continuing above its normal size, while the other continued atrophied, not being above half its normal size. The venereal functions were retained. The author is aware, that to the three cases it may be objected, that the hypertrophy of the one testis, which existed in them all, was rather a compensation for the loss or the atrophied condition of the other, than an effect of syphilis; but, allowing some value to the observation, although the details of the cases diminish this, yet the main fact remains,—that a testis, after an attack of syphilitic sarcocele, may retain its normal, or even a larger volume, and be quite capable of its ordinary functions.

On the employment of Electricity in the treatment of paralysis of the bladder; By M. Michon.

After some preliminary remarks upon the neglect with which this mode of treating this affection has been regarded in France, M. Michon thus states the principles which have guided him in employing it:

> "The urinary bladder is composed of membranes and muscular fibres, which receive nerves from two distinct sources,—the spinal nerves, or those of animal life; and the ganglionic nerves, or those of organic life. The contraction of the bladder is in part subjected to the will, and in part removed from its operation. Every one is aware, that the resistance opposed by the neck of the bladder and the urethra being once overcome, the organ empties itself almost without our knowledge, and without the will taking any part in this function, other than in augmenting the force and rapidity of the stream, by aid of the contraction of the abdominal muscles. It would seem that the nerves of animal life are required to commence the contraction, but that its completion devolves on those of organic life. At all events it is certain, that, once commenced, the contraction goes on without the aid of voluntary effort, or even in spite of this; for, if we wish to suddenly arrest the stream, an act of volition transmitted to the muscular fibres of the bladder will not suffice, and, to accomplish it, we are obliged to produce a mechanical obstacle to the flow of the urine, by inducing a sudden and violent contraction of the perineal muscles, the effect of which is to apply the walls of the urethra against each other. It is muscular resistance opposed to a muscular contraction, in which the strongest will prevail, but frequently not without pain and difficulty. There is one other fact I would allude to, viz. that the concurrence of these two influences, the spinal and the ganglionic nervous systems, seems essential, in order that the contraction of the bladder should become complete; and it is guided by this idea that I have, in the application of electricity, endeavoured simultaneously to influence the branches proceeding from each of these. It is by analogous reasoning, and by the resemblance he conceived the bladder in this respect to bear to the uterus, that M. Allié has been in the habit, since 1837, of employing, with great success, the ergot of rye in paralysis of the bladder. Nevertheless, the administration of this drug is not always without its inconveniences; and even from M. Allié's memoir upon the subject, now under the consideration of the Academy, it results that excitement of the genital organs and of the cerebro spinal system has sometimes accompanied its employment." (Vol. ii, p. 105.)

Two cases are related which occurred in the author's own practice, and two in M. Monod's, in which the application seems to have been of remarkable efficacy. A silver catheter was introduced into the bladder, and another passed through the rectum to the rectovesical wall; and, the bladder having been emptied, both instruments were brought into communication with Lebreton's electrical machine, which was maintained in activity during two or three minutes. A very few repetitions sufficed. The cases in which the electricity was advantageously employed were examples of paralysis of the bladder from old age, paralysis from distention of the organ, together with severe catarrh of the bladder, paralysis with a certain amount of *engorgement* of the prostate, and paralysis produced by the vapours of charcoal.

Large salivary calculus; by Dr. Bassow.

This occurred at the surgical clinic, at the University of Moscow, in the person of a healthy countrywoman, aged 20. The calculus was easily removed from amidst the fungosities to which it adhered, and the wound cicatrized. All the girl could state about it was, that it began to appear at the age of 8 years, and continued slowly to increase. In its dry state it weighed eighteen grammes, sixty centigrammes; and its composition resembled that of the ordinary salivary concretions.

ART. V.

Researches on the Development, Structure, and Diseases of the Teeth. By ALEXANDER NASMYTH, F.L.S., F.G.S., &c. &c.—*London*, 1849. 8vo, pp. 230. With Portrait and Ten Plates.

IT is just ten years since the author of the present work, now unhappily lost to his profession, published a volume which purported to contain the first part of his researches on the development of the teeth, but which consisted only of an historical introduction to the subject; this work was noticed in the pages of both our predecessors.* The present volume sees the light under peculiar circumstances, and such as may well claim some indulgence from the critic; being brought before the public after the death of the lamented author, and under the auspices of his widow. It boots not now to speculate upon the probable alterations and corrections which he might have felt it necessary to adopt, had he lived to conduct it through the press. It was, we are assured, "the result of long professional inquiry and patient investigation." It was completed before the fatal seizure which deprived that branch of the profession to which he belonged, of one of the few members of it who reflected credit upon it by his professional character, no less than by his private worth; and "its production before the public was," we are told, "his first, his unchanging aspiration." We are therefore justified in viewing it as his exclusive and well considered work; and in attributing to him whatever merits or defects it may contain.

It is no untimed reflection upon the author to state, that in all the productions of his pen which have come under our observation, there is wanting that critical accuracy and that correct appreciation of the value of facts, which we believe can only be obtained by the discipline of an *early* regular professional education. The misapplication of phenomena to theories which they do not prove or illustrate, and the want of discrimination between the impossible and the true, are defects scarcely to be avoided by those who take up the study of any of the sciences of observation, at a period of life when those habits of correct thought and reasoning are seldom acquired, without which not only are things described which never existed, but results are deduced even from truths, which those truths can never legitimately bear out; and the investigator seems never able to comprehend the possible truth of the maxim, "le vraisemblable n'est pas toujours le vrai."

In endeavouring to lay before our readers a general view of the contents of this work, and assisting them to appreciate its value, our task is much restricted by the absence, in the first three chapters, of all pretence of originality or even of peculiar usefulness; as they consist of nothing more than, in the first, some superficial views of the general physiology of the dental organs, and, in the second and third, of such descriptive anatomy of the parts connected with the teeth and their ordinary functions, as may be found in any elementary work on anatomy, and in every 'Dissector's Manual.' There is, however, in the first chapter, a passage which must not be passed over, as it illustrates the loose and partial kind of reasoning to which we have just alluded. The author is referring to the beautiful adaptation of the dental apparatus to the habits of different species or groups of animals.

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* Brit. and For. Med. Rev., Vol. IX, p. 168; and Med.-Chir. Rev., July, 1839, p. 138.

> "The docile horse, whose instincts lead him to crop the humble produce of the plain, has no teeth which can compare with the sharp and powerful tusks of beasts of prey; yet the conspicuous character of his race, velocity of motion, is as clearly shown in the construction of his oral teeth, as though it were written upon them in letters of brass. His strong and powerful incisors are obviously intended to enable him to gather quickly, and in the few moments allowed him for repose, his hasty meal, that he may be ready on the instant to flee before his pursuer, and gain by enduring speed that which was denied him in cunning and strength. How differently provided is the ponderous and clumsy ox; his incisor teeth are small and weak, deficient entirely in the upper jaw, performing slowly their appointed office; while his strength lies less in his speed than in the powerful defensive organs which surmount his head." (p. 10.)

Now, here the fact is utterly overlooked, that animals far fleeter than even the horse, and far more timid too,—the different species of deer and antelopes,—have the same form of dental furniture as the "ponderous and clumsy ox." It is evident from this and numerous other passages, that Mr. Nasmyth had no clear conception of the laws and relations of structure, as belonging to *groups* rather than to isolated forms,—in other words, had no idea of philosophic generalization.

We proceed, however, to the more especial object of this review,—the consideration of some of the views taken by Mr. Nasmyth of those points of dental physiology, of which, as the establishment was, we may presume, his principal object in writing the work, so the discussion is fairly challenged by the position which he has taken.

The first point to which our attention is drawn, is the intimate structure of the ivory or dentine. The author's views on what are usually considered as calcigerous *tubes*, are opposed to this idea of their nature; and he endeavours to show, contrary to the conclusions of the most distinguished microscopists, by whom they have been examined, from Leuwenhoek down to Tomes, including Purkinje, Retzius, Müller, and many others, that these supposed tubules are solid fibres. First of all, however, our author sought the aid of chemistry, to ascertain the relative proportions of earthy and animal,—in other words, of organic and inorganic—matters of which the dentine is composed. For this purpose he had recourse, and he could not have done better, to his friend, Professor Thomson, of Glasgow, whose results are given at length in the last chapter of the book. "From Dr. Thomson's analysis," says Mr. Nasmyth, "it appears that the quantity of animal matter is very considerable." Why, so it appears from the analysis of Berzelius, from that of Pepys, from that of Bibra, from the analysis, in short, of every chemist who ever submitted this substance to the test of analytical examination; and so he might have been told by every medical student and every apothecary's apprentice, who ever soaked a tooth in a dilute mineral acid, for the purpose of seeing what was the relation borne to the whole tooth by the animal residuum, after the earthy salts had been decomposed and dissolved out. But Mr. Nasmyth continues thus: "And *it is evident* that it (the animal matter) is contained chiefly in the fibres, or, as they have been termed, tubes of ivory." Now, how this evidence is arrived at, we have no information; but, having determined that it *is* evident, the author proceeds to found upon it the following corollary: "It follows, *therefore*, that the interfibrous or intertubular substance differs greatly in composition and physical properties from the fibres or tubes." Of course it does;—but what if physiologists, taking a different view from Mr. Nasmyth, should come to the conclusion, from the peculiar aspect of the tubules, from their perviousness to liquids, from the escape of bubbles from their orifices, when examined under a microscope during the action of a dilute acid, as observed by Retzius, and from other corroborative circumstances, that, in fact, the calcareous matter of the dentine is contained in the *walls*, not in the cavities of the tubuli, and in the intertubular substance,—is there not, we ask, some reason for such a conclusion from such facts? And yet, upon the unsupported assumption to the contrary, Mr. Nasmyth attempts to subvert all the careful deductions of the distinguished physiologists who have so philosophically examined this point. Let us see how the converse of his proposition is supported. Mr. Tomes follows up the experiment which was originally instituted by Retzius, and thus proceeds:

> "In the year 1837, I was engaged in examining the structure of teeth, and then came to the conclusion, that the dentinal tubes contained an amorphous salt of lime. My opinion was grounded on the following experiment: After preparing a thin section of human tooth, I placed it in the field of the microscope, and then added a little dilute muriatic acid. No sooner was the acid in contact with the section, than evidence of chemical action was rendered visible by the appearance of bubbles of gas, and these emanated, not only from the external surfaces of the section, but also from the interior of the tubes, from which bubbles of gas were seen issuing in quick succession. When the action ceased, the tubes no longer presented the appearance of opaque, dark lines, but were indistinctly seen filled with transparent fluid.—At the time, much struck with the result of the experiment, I was led to the opinion, that the gas generated in the tubes was produced by the decomposition of their solid contents, which I supposed to be carbonate of lime; however, upon more extended observations, I was induced, from the examination of teeth in which the tubes are large, and also from the examination of the tubuli of the human tooth with a high power, to modify my first opinion, and was compelled to............regard the evolution of gas from the tubuli as evidence of the facility with which fluids are admitted into their interior, and to consider that the source of the gas existed in the decomposition of the parietes of the tubes rather than of their contents.—I have since found, that, by a little management, fluids, when added to a dry section already in the field of the microscope, may be seen entering and traversing the tubuli."*

We took up Mr. Nasmyth's work, in the hope of finding something new, on almost the only part of the subject on which much remains to be done. How is it, that, since Mr. Goodsir's investigations on the early development of the teeth, and the succession of the permanent to the temporary set, and their primary relations to each other, no one seems to have had the courage to enter upon the detailed and laborious examination which the present doubtful and unsatisfactory state of that subject requires? All seem satisfied to follow Mr. Goodsir implicitly, without endeavouring to remove the difficulties, and to reconcile the discrepancies, which every one who has examined the subject with any attention must *feel* to exist, whether he will acknowledge it or not. Whatever merely requires the slicing of teeth and the examination of them by the microscope,—a pursuit requiring neither labour, nor much thought and reflection,—is repeated over and over again; every later observer thinking it necessary to differ from him who has just preceded him (a procedure, by the bye, which is calculated to cast doubt and discredit upon the truthfulness and certainty of microscopic observation in general). But where there are great difficulties to be overcome, a patient and laborious investigation to be persevered in, and a rich harvest of truth to be gained, we have no one—no, not even Mr. Tomes—prepared to sacrifice his time to the needful duty. Mr. Nasmyth has, as it appears to us, thrown no new light upon this important subject. It is, however, worthy of remark, that he has thought it right to invent a new name for the periosteum of the alveolar cavity, and that of the cortical substance of the root of the tooth, which, without any given reason, and certainly contrary to fact, he considers as ultimately forming but one membrane. This view has been positively denied by former writers, to whom Mr. Nasmyth does not allude; and we are sure that we have ourselves seen the alveolar cavity lined with periosteum, and the root of the tooth, which has been removed from that same cavity, still covered with a periosteal investment. We speak, of course, of the dead subject. This supposed compound membrane he terms the "capsulo-periosteal membrane," a term which conveys, if any definite notion, a very erroneous one, of its nature and origin.

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* Dental Physiology, p. 41.

The fact to which we have already alluded, that most of the controversial parts of this work are copied verbatim from the author's former publications, renders it the less necessary for us to enter upon a critical discussion of them at the present time; and we gladly avail ourselves of the exemption thus afforded, as we are relieved from the necessity of recurring to the painful discussion which occurred on the occasion of the presentation of the most important of these publications to the British Association. We do not intend to inquire who was right or who was wrong, nor to rekindle the ashes of a dispute, which the friends of all parties concerned must wish had never been entered upon. We have only to record our conviction, that both the subjects which were then discussed,—the intimate structure of the dentinal tissues,—and the mode in which those tissues, and especially the dentine itself, are produced,—require a thorough re-examination. On the latter point especially, the "conversion" theory, strenuously upheld by Mr. Nasmyth, as well as by others who dispute his claim to having originated that theory, much yet remains to be done. Neither mode of explaining this development, upon the principle the conversion of the mass of the pulp into dentine, is in accordance with some incontrovertible facts in the relation borne by the pulp to the shell of dentine, during the increase of the latter at the expense of the former. Whether the recent interesting discovery of Mr. Tomes, of the continuity of the dentinal tubes into the enamel in the marsupial animals (see p. 245), will ultimately lead to any more certain results on this difficult question, or not, we cannot anticipate; but sure we are, that, unless the question is taken up *de novo*, with a determination to avoid all prejudgment, with a proper regard to the difficulties and uncertainties of minute microscopical investigation, and with the recollection that the revelations of that instrument, if true, can never contradict the *facts* of what we may term *coarse* anatomy, the subject will continue shrouded in its present obscurity, and stand one of the many opprobria of microscopic physiology. Tissues which require examination by "a magnifying power of one tenth of an inch focal distance," must not be hastily determined upon as understood and defined. We are quite sure that Mr. Nasmyth used every possible precaution which the case would allow; that he employed the best instrument he could procure; and that he spared neither time nor labour in his investigations: but with all these means and appliances, we are not satisfied with the certainty of his deductions, nor can we consider the question as yet set at rest. It is, we are well aware, next to treason, or rather it would have been a very few years since, to doubt for a moment the accuracy of conclusions derived from microscopic investigation; but we really should imagine that the discrepancies in the interpretations given by different observers of the same object, not occurring in one, or ten, or twenty, but in innumerable instances, should lead to a wholesome scepticism: especially where the magnifying power employed is so high as that to which we have just now referred. One of the greatest proofs of the fidelity of Mr. Nasmyth's figures, or rather of the truthfulness of his artist, is the remarkable dissimilarity of many of the figures purporting to represent the same structure. Thus, in the woodcuts which profess to exhibit the conversion of the pulp-cells into ivory-cells (fig. 32 to 38), we have the most extraordinary diversity of appearance. In fig. 37, particularly, which represents "a portion of the pulp of a young tooth, exhibiting different stages of transition into ivory," the reticulations, which are supposed to represent the pulp-cells, are of precisely the same size and form as they continue to be when solidified into ivory; in figs. 35 and 36, the latter stage exhibits the cells as not less than twenty times the area of those of the pulp before the change, as shown in the same figure. Now, both these views cannot be correct, at least as exhibiting the facts which they profess to support. The inevitable conclusion is, that in neither case are they to be depended upon as affording any solid proof of the truth of the so-called "conversion" theory. We are not now assuming or denying the truth of either of the two theories; we are merely showing that, as far as regards the representations in the present work, the subject is not in the slightest degree rescued from its state of doubt and uncertainty. We remember having once seen four physiologists, of deservedly high reputation, all examining a disputed point together, with one and the same instrument, and in one identical subject; and from their conversation we found, that, had each of them been called upon separately to describe and figure what he saw, no two statements would have been alike;—a clear proof of how much depends upon the previous state of *mind*, in the perception of sensuous objects.

A considerable portion of this work (nearly one third) consists of lengthened extracts, within inverted commas, from the author's former publications. We are not disposed to cavil at this mode of increasing the size of a book; but, as these passages have long been before the profession, we do not consider it necessary to examine them very minutely. There is, however, one short passage, which we select, amongst a host of others that might have been cited, as an illustration of the proneness of the author to introduce statements and opinions long since published by others, as if they had been now for the first time discovered and stated by himself. Thus, at p. 113, he says, quoting from a former paper of his own: "In that paper I observe—

> "The term, cutting of a tooth, has hitherto been employed to designate its protrusion through the capsule and the superimposed integuments. Respecting this process Cuvier thus expresses himself: 'Elle (la capsule) est percée à son sommet par l'evolution de la dent, mais ses bords s'attachent aux gencives, et en deviennent en quelque sorte la continuation." This description of Cuvier has been, I believe, universally adopted; but my researches have led me to the conviction that it is erroneous, and that it is by a process of absorption, and not of disruption, that the tooth is emancipated." (p. 113.)

Now we certainly remember this opinion as stated broadly by former authors, who wrote long before Mr. Nasmyth had thought of the profession, or made an observation in physiology. We remember at least one practical author whose writings could not have been unknown to Mr. Nasmyth, who distinctly asserts this fact; so that he really must have been aware that "this opinion of Cuvier" had *not* been "universally adopted."

A rather long chapter on the teeth as an indication of age, consists almost wholly of quotations from Cuvier and from Mr. Saunders. Mr. Nasmyth, however, states *in limine*, that—

> "The appearance of the teeth above the level of the gums takes place with so much regularity, both with regard to succession and time, as to constitute an important means of ascertaining the age of the individual during the early periods of life. Indeed the teeth may be considered as of the highest practical value in determining medico-legal questions bearing upon age."

Now our own opinion, founded on some opportunities of personal observation, and some also of learning the results of the observations of others, is that the period of the cutting of the teeth, whether of the deciduous or of the permanent set, is so various, as to admit of the most erroneous conclusions, if depended upon exclusively in conjecturing the age of the infant or youth. Thus we find in the experience of Mr. Saunders, that "of 708 children of nine years of age, 389 would have been pronounced on an application of this test to be near the completion of their ninth year, the extreme deviation being twelve months,"—no inconsiderable deviation this, if a question of importance depended upon the test.

In closing our notice of a work of which we cannot but regret the publication, at least in its present form, we would remind our readers that the adage "De mortuis nil nisi *bonum*," has long since given place, in the minds of conscientious men, to "De mortuis nil nisi *verum*."

If it be thought that we have dealt somewhat sharply with this treatise, we would urge in our defence that we have been solely actuated by a love of truth, and a desire to repress the notion that philosophy can be advanced by crude and ill-digested details, and conclusions formed upon untenable or insufficient grounds. Most gratified should we have been, if we could have spoken throughout in terms of approbation of this posthumous production of one whose personal character was so much respected, and by none more than ourselves. But we cannot doubt that had the lamented author lived to mature and reconsider his opinions, and to re-examine his facts with the unprejudiced eye which time is apt to give, he would have sent his book into the world greatly modified at least, and probably curtailed of half its proportions.

Art. VI.

Beschreibung sämmtlicher Kinderheilanstalten in Europa. Nebst einer Anleitung zur zweckmässigen Organisation von Kinder-krankeninstituten, mit Beiträgen zur Geschichte und Reform sämmtlicher Spitäler im Allgemeinen. Von Franz S. Hugel, Doktor der Medizin, Direktor der Kinder-krankeninstituten im Wieden, &c. &c.—*Wien*, 1848. 8vo, pp. 548.

An Account of the Medical Establishments in Europe for Children; with Instructions for the Complete Organization of Dispensaries and Hospitals for the same, &c. &c. By F. S. Hugel, m.d., &c, &c.—*Vienna*, 1848.

In our sixth number, in an article 'On the Diseases of Children,' we took occasion to lay before our readers the urgent necessity which exists for the establishment in London of an hospital for sick children, both as relates to the more effectual treatment of many infantile disorders occurring amongst the poor, and to the education of the advanced student in a highly important class of maladies. When writing the article in question, we little thought that a work had but just then been published in Vienna—that favorite exemplar with many of slow intellectual and moral progress,—which contained within its pages the following reflection upon us:

> "It will scarcely be credited when I say that London, this vast city of the world, does not possess a special hospital for sick children, but merely dispensaries." (p. 93.)

We fear that if the present aspect of matters continues, Dr. Hügel will not hold himself entitled to erase the above animadversion from a second edition of his elaborate work, should necessity require one within a moderate space of time.

Our author divides his book into six sections. Under the first is considered the history of the origin of hospitals in general; under the second a special account of individual medical establishments for children is given; the third is occupied with the consideration of those principles, both administrative and medical, which should regulate the organization of such establishments; the fourth considers the reform of hospitals in general; the fifth contains "a scheme of the chief existing benevolent institutions for children;" and the sixth division relates to the literature of the preceding subjects.

Dr. Hügel commences the first division of his work by remarking upon the neglect with which systematic writers upon the history of medicine, like Curt Sprengel, have treated that of the origin of hospitals. Our author does not pretend to supply the void thus left, by a complete treatise upon the subject, but takes a general glance at it, and affords the dates, &c., of the foundation of the more important hospitals; thus making an interesting and sufficiently perfect introduction to the topic more particularly before him:

> "For the establishment of the first houses for the reception of the sick (Lazarette) in *Europe*, we have to thank Christianity; these, however, can be regarded only in the light of benevolent institutions, and by no means as serving for the formation of medical practitioners. The tending of the poor and sick was commanded as a

holy duty by Christianity: and we therefore find that from the fifth century, several hospitals were erected on sacred spots, partly by private charitable individuals, and partly by emperors and bishops; and as they had no physicians, the care of the sick was given over to the monks, who regarded the fulfilment of the duty as honour to God. The first trace of the origin of hospitals (in Europe) cannot be satisfactorily extended beyond the Christian era, unless we choose to reckon some of the magnificent thermæ and large amphitheatres of ancient Rome amongst such establishments." (p. 2.)

But although *Europe* has to thank Christianity for the rise of these valuable and important charities, and it can be shown that the Greeks and Romans possessed no such institutions for the sick, yet before the Christian era their existence among the Indians and Persians can be historically proved:

We find the first intimations of the existence of hospitals in India already in the seventh century before Christ, the establishing of which completely corresponds to the religious precepts of Buddha." (p. 10.)

" A single glance at the hospitals of the past and present times is sufficient to show the great and extraordinary change to which they have been gradually subjected. At the erection of the first hospitals, certainly no one imagined that these institutions, which were originally intended for the reception of the *leprous*, would serve one day for the care of those afflicted with maladies of any kind, and even to the exclusion of those very leprous patients." (p. 21.)

But—

" Nearly eighteen centuries elapsed, before society attained to a persuasion of the importance of establishing institutions for sick children. It was in our present century—which by full right may be called the century of progress—that we commenced devoting ourselves to the treatment of sick children, as an object to be realized in special institutions appropriated to their reception alone. For this object, two kinds of establishments arose, identical in their object, but differing in some external characters, viz. Dispensaries (ambulatory clinics and polyclinics,) and Hospitals." (p. 25.)

In London, in the year 1769, a *dispensary* was founded by Dr. Armstrong (the poet?) which, however, ceased its benefits after its founder's death; but, in 1816, a new one arose, under the care and auspices of Dr. Davis (see our Vol. III, p. 414.) Vienna soon followed the example of London, and established a similar institution, under Mastalier in 1787. It was in France, however, that the first hospital sprang up; and Paris saw one founded in 1802, according to a decree of the 18th Floreal, of the 10th year of the Republic.

We shall now pass on to the second division of Dr. Hügel's work; and, without detaining our readers with his minute account of the various *dispensaries*, confine ourselves to a notice of the more important *hospitals*. We must premise, however, that our author, except in so far as he is indebted to a communication he received from the late Senior Physician to the Royal Infirmary for Children, Dr. West, does not give a clear statement of the dispensaries for children which have existed, or do now exist, in our own metropolis. He jumbles them up together, makes them different " stations" in different places of one and the same institution, and does not notice at all the " General Dispensary for Children" in Worship Street. He is particular, however, in giving the " form of a legacy," in case any one wishes to leave property to the " Royal Infirmary."

In the southern district of Paris, in the " Rue de Sévres," close to the hospital of Madame Necker, is situated the "Hôpital des Enfans Malades." At the present moment, according to to Dr. Hügel,—

> "It takes first rank amongst all the hospitals for children in Europe, since it has accommodation for 600 beds, is maintained entirely by the state, and has special departments for medical, surgical, and dermatic affections, under the care of persons particularly devoted to such specialties, who afford superior clincal instruction to the *elèves* of medicine and foreign practitioners." (p. 25.)

The origin of the hospital is as follows:

> "A priest of St. Sulpice founded, in 1751, an establishment for the education of young girls,* and bestowed upon it the title of 'Maison de l'enfant Jesus.' It was under the superintendence of the 'Filles de St. Thomas de Villeneuve,' who wore black clothes, and long, white, hanging veils, and were under strict conventual regulations. At the period of the Revolution, it was converted into a female orphan asylum; but the decree of the Republic, of the 18th Floreal of its 10th year, caused it to be changed into an hospital for children, as the council held it to be more advantageous, both in moral and physical respects, to separate sick infantile patients from adult ones, and, moreover, eagerly sought to banish sick wards from orphan houses." (p. 119.)

Patients of both sexes are received, between the ages of two and fifteen years; and although, as we have said, the hospital makes up 600 beds, and in 1844 more than 3800 patients were admitted, yet the accommodation is by no means equal to the demands made upon the charity. The number of children remaining in the hospital on the 1st of January, 1845, and of those admitted during the year divided by the number of those who died, gives as the mortality—

For the girls . . .	6·52
For the boys . . .	6·48
	6·50 medium mortality.

The mortality, according to the numbers of those cured and those who died, divided by the amount of the latter gives—

For the girls . . .	5·59
For the boys . . .	5·80
	5·70 medium mortality.

The whole expenses of the institution amounted to 219,843 francs; being at the rate of 1f. 31c. 91d. for each patient each day. Every Saturday, at 11. a. m., consultations are held. Occasionally the scrofulous patients are sent to Dieppe, for the benefit of sea bathing. Almost all the children who die are examined after death.

Besides the "Hopital des Enfans Malades," in Paris, there is an infirmary belonging to the "Hospices des Enfans Trouvés," in which children up to two years of age are received. The chief diseases which come under treatment here are *marasmus*, *muguet*, *gastro-enteritis*, *enteritis*, and *bronchitis*. Every child that dies is examined.

St. Petersburgh was the next European city that followed the example of the capital of France. In 1834, an hospital was established, chiefly through the instrumentality of Dr Friedeberg and his influence with the state. There appears to have been great necessity for it, since:

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* It occupied the spot of an old nunnery, built in the year 1735 by Maria Leszczynska and the priest Laurent de Gergy.

> "While the mortality in general at St. Petersburg must be considered as very high, the number of children who annually perish in this city, in comparison with other and nearly as densely populated towns, is so great, that for a long while it has been double the absolute rate. Comparative statistical tables confirm, without any doubt, the truth of this statement; but it is far more difficult to point out the essential reasons for this great mortality. . . . . .Dr. Lichtenstaedt, however, in his Prize Essay on the Causes of the great Mortality of Children in the first years of Life (St.Petersburgh, 1837),has afforded the profession some indices as to the sources of so unfortunate an occurrence, in drawing attention to the various manners, habits, superstitions, and vital relations of the lower classes." (p. 146.)

The Russian hospital at first contained only 60 beds; but before the end of the first year, the number was increased to 100, which is the present amount. In 1842, a new building was erected for the purpose. The St. Petersburg establishment receives high praise from Dr. Hügel, who states, that there exists few such excellent institutions. Patients are admitted between the ages of 3 and 14, irrespective of what disease they labour under, with the exception, that no *incurables* are accepted, nor diseases for the treatment of which the capital may possess special institutions. In the year 1840 the following were the results:

Admitted . . .	486 boys	333 girls	=	819
Cured	376 "	277 "	=	653
Had died . . .	92 "	47 "	=	139

According to the tables of 1845 *nervous fever*, *measles*, and *scrofula* were the chief diseases for which admittance was most frequently sought. In the course of seven years, the operation of lithotomy has been 11 times successfully performed. The chief attraction of the museum is said to be the collection of vesical and urethral calculi. The expenses have varied from 42,000 to 50,000 rubles in the year.

In 1842, an hospital for children was opened in Moscow, under the superintedence of Dr. Kronenberg. It now contains 100 beds, which, in the months of January, February, and March, are always occupied, but, in the summer months, as many as 40 are often vacant. "This institution is quite a *model* one, as it responds to every conceivable requisition, both in an administravit and medical respect." (p. 105.)

In December, 1846, 33 boys and 35 girls were under treatment in the hospital. Out of 136 operations, 15 deaths occurred; lithotomy having been successfully performed several times.

> "The numerous officials of this institution are absolutely necessary; as it was intended from the first, that the greatest cleanliness, order, and attention to the minutest trifle should be put in force at every hour of the day; since the experiences of other Russian institutions has taught that, in a ratio with the care bestowed upon these things, was the standard of mortality the more favourable. The slightest oversight in any department, of whatever description, would easily carry with it a bad opinion of the whole hospital in the estimation of the chief authorities.
>
> "Further, the great number of medical officers (one physician in chief and six ordinaries) are quite necessary for the 100 beds, since a medical officer must always be present in the hospital, both day and night. Each officer in his turn passes the twenty-four hours there; and the physician *en chef* is ordered to see this regulation strictly carried into effect." (p. 105.)

In 1837, Dr. Mauthner opened, at his own cost and risk, a small hospital of twelve beds in Vienna:

"Proceeding with unremitting perseverance along the path he had commenced, this untiring man sought permission from the authorities, to give lectures on the *dietetics* of children; this was accorded him in May, 1839. They were commenced in October of the same year, and included, along with those on the hygiene of healthy children, some practical lectures on that of sick ones, and assisted in diminishing the deep-felt want of well-informed nurses. The number of auditors is at present yearly from 50 to 60: of whom those who submit to a test receive a corresponding certificate." (p. 263.)

In 1840, the Empress Maria Anna afforded some pecuniary assistance to the hospital; and in 1842, it was taken under the permanent protection of the State, chiefly by her endeavours; and from this source a portion of its funds is derived. It only now contains, however, forty-four beds. The patients suffering from infectious and exanthematous diseases are entirely separated from the rest.

In 1846, 668 children were treated in this hospital, including 6 new-born, and 6 between two and six months old; the greatest number were from one to six years of age.

> "The mortality of the most severe affections in the hospital amounted to the rate of 16 per cent., or one in six; that of the usually slight ones of the dispensary to 6 per cent., or one in sixteen.
>
> "To accept the rate of mortality in the manner in which it has been reported in late years, by so many institutions for the sick, may be by all means agreed to as a standard for a particular establishment, and for a given amount of determined qualitatively-different diseases; but to institute a numerical comparison between the greater or less amount of such rate of different institutions, in relation to an assumed more or less successful treatment in them, is a proceeding which must be relinquished as illogical in the extreme. Not only as respects a *like number* in two institutions, in regard to risk, most diametrically opposite cases exhibit different results as to treatment; but in the same, even if a *like number of nominally similar affections* were admitted, no justifiable comparison could be made; since the different grades of the latter, their greater or less previous neglect, the various ages of the attacked children, the different qualities of the nominally identical affections, their various combinations, the period of the year, and the preceding affections, mode of life, education, and constitution of the child, powerfully modify the result of the malady." (p. 275.)

The expenses of the year 1846 amounted to rather more than 5338 florins.

In 1842, another hospital—that of St. Joseph—was founded in the district of Wieden in Vienna. It contains 50 beds; and 507 patients were admitted in 1846, between their first and tenth years. Children at the breast are only accepted when attacked by acute or infectious maladies. Cases of smallpox, however, are sent to the general infirmary. Dr. Hügel speaks very highly of the present administration of this hospital in all respects.

Besides the institutions we have thus noticed, there are numerous other hospitals for children on the continent; of the dates of foundation of which, and of the number of beds they contain, we have condensed the following summary:

	Date.	Beds.		Date.	Beds.
Hamburgh	1840	30	Gratz	1844	48
Frankfort	1842	60	Pesth	1845	30
Prague	1842	25	Lemberg	1845	26
Stuttgart	1842	23	Brünn	1846	13
Berlin { Elizabeth Hospital	1843	61	Munich	1846	12
Louisa Hospital	1844	8			

We are glad to find that Italy has not been behindhand in usefulness. In 1845, an institution founded by the Marchese Faleti di Barolo was opened in Turin, for the education and care of poor girls between the ages of three and twelve years. An hospital—Ospedaletto di Santa Filomena—was immediately connected with it, containing 44 beds, into which sick girls are admitted, except those suffering from *epilepsy*, *diseases of the scalp*, *inveterate scrofula*. But scrofulous cases likely to be benefitted, chronic diseases, and *rachitis*, in particular—or, as our author, like many of his countrymen, calls it, the "English malady,"—are freely admitted; and to the treatment of the latter affection great attention is paid, the hospital, according to Dr. Hügel, sparing no pains in putting in force all the therapeutic and orthopædic improvements of modern times. The building is described as being, in its form, arrangement, position, &c., "a model for all Europe," and a plan of it is appended to our author's work.

The practice of medicine ordinarily pursued is *allopathic*, but there is a *homœopathic* department under the care of Dr. Remichalis.. The following table applies to the period between the 6th of August, 1845, and the end of June, 1847.

Department.	Admitted.	Died.	Discharged.	Remaining.	Relatian of Mortality
1. Medical.........	82	13	53	16	15 35-41
2. Surgical........	40	3	21	16	7 1-2
3. Homœopathic	47	10	25	12	21 12-47
	169	26	99	44	45 5-13

> "When we compare the number of girls admitted in the period of twenty-three months with the accommodations of the hospital, that number may appear rather small; but if we take into consideration, that a great many of the girls were admitted with chronic affections, whose treatment often demanded, several months, that this treatment was unusually interrupted by an outbreak of epidemic ophthalmia in August, 1845, and that, in August and September, 1846, on account of the prevailing epidemic of smallpox, the admission of new patients was delayed, we shall find more than sufficient reasons to account for the small number alluded to." (p. 220)

Turin can boast of yet another hospital for children. The Conte Luigi Franchi founded one for both sexes in 1843. In it, 8 beds are always appropriated to patients with diseases of the eye; and, in 1846, 40 such patients were admitted.

At Copenhagen it was projected in 1845, to found, under the auspices of Dr. Dreyer, an hospital for children (Börnehospital i Kjöbenhavn.) Dr. Hügel thinks it has probably been since erected; but as no report has been published, we cannot give any particulars of it. We may also state that the Almânna Barnuset i Stockholm has an hospital department for sick children, under the care of Dr. Berg, whose able work on *Thrush* was noticed by one of our predecessors (Brit. and For. Med. Rev., vol. xxiv, p. 422).

In closing our account of individual hospitals, we shall do so with that of Constantinople, allowing Dr. Hügel to speak of it in his own words:

> "His Highness, the Sultan, in the year 1847, ordered the erection of a building on a convenient and healthy spot in Constantinople, which should serve for the

reception, irrespective as to faith, of foundlings and orphans, and for the care and restoration to health of sick children, as also for a vaccination institution. His eminence the chief Mufti or Sheik l'Islam, the first physician to the person, or Hakim Bashi, and the Italian physician Cattanaro, constitute the directing board." (p. 305.)

From Paris to St. Petersburgh, from St. Petersburgh to Constantinople, from Constantinople to Copenhagen, there is the continent of Europe supplied with hospitals for sick children. London, so redolent of other benevolences, is as yet callous to its extraordinary deficiency in this. Not only, however, is it wanting in such an institution, which can both specially treat and teach the nature of infantile affections within its own walls; but it is even far behind most of the continental towns, in it provision of mere dispensaries for youthful patients. All the foreign cities whose hospitals we have more or less fully noticed, have dispensaries for the young, either attached to these hospitals, or distinct from them, or even have both in many more cases than one. London, so far as *we* are aware—but we may be wrong,—possesses only two; the Royal Infirmary in the Waterloo Road, and the Dispensary in Worship Street. Upon this point, however, we before spoke so fully (vol. III, p. 406), that we shall now only remark that we are forced to throw ourselves on that last hope (as all else *seems* hopeless),—the persuasion of some patrician patrons so to "assist," as the French say, at some fancy fair, or promenades in horticultural or botanic gardens, or *concert monstre*, or some such fanfaronade of fancy and fashion, that such an amount of means may be obtained, as shall enable the Royal Infirmary for Children to complete its original design of furnishing its now empty rooms, if it be only with a dozen beds. This surely is not asking too much to begin with.

In the next, the third division of his work, Dr. Hügel enters very fully on the principles upon which institutions for sick children should be established and carried into operation, and their medical and administrative duties, &c., performed. He first separates such institutions under two heads: these are, 1st, Dispensaries; 2d, Hospitals; and then treats of their special requisitions respectively. Besides referring to the chief "aims" of the former, such more particularly as relate to the better treatment of the diseases of children, and a more perfect attainment to a knowledge of their pathology, statistics, &c., their more prominent and great "advantages" to the general community are thus laid down.

1st. The formation of practitioners who will devote themselves specially to the treatment of infantile affections, as well as the education of medical men in general in this department.

2dly. The filling up of a void existing between mere asylums for children, and hospitals for the same.

3dly. The furtherance and increase of the reciprocal affection between the mother and her child.

4thly. The limitation of the spread of epidemic and contagious disorders.

5thly. The promotion and maintenance of the moral and physical welfare of children.

6thly. The avoidence of relapses in the diseases of youth.

7thly. The title of such institutions, in an economic point of view, to all recognition and increase.

Every point of importance, whether general or medical, connected with Dispensaries, is discussed by our author with great minuteness; and he is especially particular in his observations on the system of prescribing which should be adopted, and on the duties of the apothecary. In remarks upon the first of the "advantages" we have just alluded to, Dr. Hügel so entirely speaks our own sentiments, the result of not an unpractical acquaintance both with the good to be derived from such a dispensary as we are speaking of, and the kind of information which students about to "pass" usually possess, that we cannot refrain from quoting the following:

> "It is, therefore, to be advised that dispensaries for children should be instituted in all large towns; and that every candidate in medicine, at the termination of his practical courses, be obliged to frequent for a determined time, one or other such dispensary, as also an hospital for children, should one happen to exist in the same town. He should also visit sick children in very interesting cases, in company with the chief or assistant-physician; be present at all the *post-mortem* investigations; and submit, at the expiration of his term, to an examination as to his acquired knowledge, the legal certificate in proof being granted by the chief physicians of such hospitals and dispensaries, as their unshackled right so to do." (p. 312)

The consideration of the construction, arrangement, and administration of hospitals is now entered upon. Dr. Hügel, though placing prominently before the reader the several advantages accruing from Dispensaries, in enabling sick children to be treated at their own homes, as also those disadvantages which exist almost inseparably from Hospitals, yet dwells urgently on the other hand upon those necessitous circumstances which render the existence of hospitals absolutely necessary. Amongst the more important grounds for their general establishment, the following are mentioned:

> "1st. The localities frequented by the poor, close, confined, and damp, as they often are, as well as overcrowded, exert a prejudicial influence upon those residing in them even when in health; but in the case of the sick are the cause of great destruction.
>
> "2dly. The poverty of many families is so pressing, that many parents of sick children, to avoid starvation, are obliged to seek a livelihood by working from home; and thus, even with the best intentions, can bestow no care upon their offspring.
>
> "3dly. The domestic management of children is mostly performed by the mothers in the lowest classes with great awkwardness, carelessness, or want of affection; though sick children always require a certain amount both of discipline and forbearance.
>
> "4thly. The uncleanliness of the bed and body clothes, of the utensils for cooking and eating, or even their entire want.
>
> "5thly. The want of sufficient nourishment, &c., generally, or that of particular articles of diet for special diseased conditions.
>
> "6thly. The insufficient warmth of the dwellings, arising from the impossibility of procuring the necessary materials.
>
> "7thly. The entire desertion of so many children, who, left by chance, even when in health, upon the care of strangers, are considered as a burthen; but when sick, are regarded as a very great trouble, to be disposed of as quickly as possible.
>
> "8thly. The danger of infection in families, where several children are obliged to live in the same apartment, and that the only one.
>
> "9thly. The importance of possessing clinical institutions for the diseases of

children; partly as being serviceable for the education of practitioners; and partly on account of the greater facility they afford of instituting anatomico-pathological investigations on the dead body, than is possible in private practice." (p. 330.)

Dr. Hügel now enters upon the consideration of the erection, arrangement, and administration, of a "model hospital;" and goes through his task with that minuteness which a German alone seems capable of exemplifying. From our examination of the previous pages of his work, we were somewhat prepared for a goodly amount of detail; but on our arrival at this, we have been lost in astonishment, for nothing seems to escape Dr. Hügel in any conceivable department. He commences with a consideration of the "architectonic relations of his hospital, of the soils which should be avoided in its foundation, &c. and concludes with an account of turfs, tan-cakes, different descriptions of coal, wood, *&c.*, their price, powers of heating, and advice as to their employment in his model institution. Between these terminal points, all and everything is passed under review, whether domestic, medical, or administrative. The very pill-making machines and measures of the apothecary's shop and laboratory, the kinds and number of instruments for the surgical department, the lengths of the bandages, the washing-tubs, nay, the very *snuffers* (p. 393), all come under the judicial investigation of our precise friend Dr. Hügel. The scrapers and door-mats, &c. are not forgotten, and it is recommended that "every landing-place on the staircase should have firmly fixed in a corner a three-sided wooden spittoon." (p. 334.)

Of course the arrangement of the wards, beds, rooms for the nurses and other attendants, bathing apparatus, as well as that for ventilation, heating, and cooking, all receive the most minute attention. We must not forget to mention, also, that where they seem necessary for the explanation of the text, wood-cuts are inserted. The very card to hang at the head of the patients' beds is thus delineated.

Fractura Femoris.

Karolina Pauli, 6 years old.

Commencement of disease, $\frac{12}{8}$ 1847 Admitted $\frac{13}{8}$ 1847

Internal remedies.	External remedies.	Surgical operation.
		Diet.

This we consider a good pattern, reflecting as it does upon the absurdity of the "cards" of some hospitals which we have seen, on which the name of Dr. —— or Mr. ——, under whose care the patient may be placed, is printed in large letters, in the place of "fractura femoris" in the above, all else on the card being scarcely visible, as if considered of quite secondary importance. When alluding to the bed-cards further on, Dr. Hügel remarks upon what he considers the unnecessary disinclination of the medical officers of hospitals to make public their diagnosis, as if they were afraid of committing themselves to it. At all events, he observes, they attest by it their great antipathy to the free judgment and criticism of those not belonging to the hospital, who may visit their wards. The argument, that it would be cruel to the sick, who sometimes understand the names of diseases, to make known to them almost their death-warrant, he considers to be partly weakened by the fact of the generally admitted ignorance of the public of the modern medical nomenclature, and partly by the circumstance, that there are few diseases, from which some individuals have not already died. In this last remark, however, he leaves out of view the marked contrast between the fatality of different diseases.

In the succeeding portion of his work, Dr. Hügel discusses the reforms which should take place in many *general* hospitals at present existing, and lays down the rules which should guide us in the establishment and direction of any new ones which may be hereafter erected. The same attention to details which characterises the previous pages, is still the marked feature in these.

Whilst agreeing most cordially with the author, on the necessity of endeavouring to attain to the utmost degree of perfection in the arrangement and conduct of hospital establishments, and of carrying everything into effect which can assist science and benefit the community, yet we fear that, if we are not to erect any new ones until all Dr. Hügel's principles connected with locality and completeness, &c., can be adopted, we shall have to wait for some time to come. We may remark, also, that many of our author's observations must apply chiefly to the administrative and domestic requisitions of his own "fatherland." Still we think, that even there a good and useful hospital may be built, which may not possess all the things he so greatly admires in his own *beau ideal:*

> "In every ward there should be a thermometer, eudiometer, hygrometer, barometer, and a clock; as also a compass-face (windrose) on the pediment of the hospital, whose index-hand, brought into connexion with a wind-vane, by means of which it is turned, will intimate exactly on the dial-plate the direction of the wind." (p. 462.)

In this portion of his work, Dr. Hūgel alludes to no less than fourteen ventilators, and fifteen stoves or ovens for heating the building or apartments; upon the relative value of which he enters more or less fully.

On the whole, we strongly recommend Dr. Hügel's work, as containing much interesting, useful, and instructive information. It embraces a great amount and variety of statistical information, to be nowhere met with in a collected form; and many valuable suggestions of the author's in relation to the establishment, &c., of hospitals and dispensaries, both for general purposes and for children.*

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* Since the foregoing article has been in type, an urgent appeal in favour of the establishment of a Metropolitan Hospital for Children has appeared in the daily papers.

ART. VII.

1. *Case of Nottidge versus Ripley and Another, tried before the Lord Chief Baron and a Special Jury, June* 23, 25, *and* 26, 1849. Times Newspaper, June 25, 26, and 27, 1849.
2. *A Remonstrance with the Lord Chief Baron, touching the Case of Nottide versus Ripley.* By JOHN CONOLLY, M.D., Fellow of the Royal College of Physicians, London, and Physician to the Middlesex Lunatic Asylum at Hanwell. Third Edition, revised and enlarged.—*London*, 1849. 8vo. pp. 36.
3. *Lunacy. Return to an Address of the Honorable the House of Commons, dated 28th July*, 1849, *for Copy of a Letter to the Lord Chancellor from the Commissioners in Lunacy, with reference to their Duties and Practice under the Act* 8 *and* 9 *Vict. cap.* 100.—*London*, 1849. pp. 12.
4. *The Case of Miss Nottidge.* Letters from Dr. STILLWELL and Dr. MARSHALL HALL. (Lancet, July 21, 1849.)
5. *Sheriff Court, Dumfries.—Brieve of Furiosity, Russell versus Russell.* —*Dumfries*, 1849. 12 mo, pp. 48.
6. *Commission of Lunacy on Mr. Vicars, of Liverpool, August* 21 *and* 22, 1849. (Sun Newspaper, August 22, 1849.)
7. *Case of Hayward versus Coombs, tried before Mr. Justice Erle and a Special Jury, December* 20, 21, *and* 22, 1849. (Daily News, December 22 and 24, 1849.)
8. *Mémoire Médico légale sur un Cas de Folie Homicide méconnue par les Assizes du Var.* Par le Dr. AUBANEL, Médecin en chef de l'Asyle des Aliénés de Marseilles. (Annales Médico-psychologiques, Janvier, Avril, 1849.)
9. *Trial of John Francis for the Wilful Murder of Thomas Hall, at the Central Criminal Court, before Mr. Baron Alderson and Mr. Justice Cresswell, November* 29, 1849. (Sun Newspaper, November 29 and 30, 1849.)
10. *Trial of Sarah Drake for the Wilful Murder of Lewis Drake, her bastard Som, at the Central Criminal Court, before Mr. Justice Pattison and Mr. Justice Talfourd, January* 10, 1850.) (Times Newspaper, January 11, 1850.)

THOUGH much has been done of late years to enlighten the public on the various forms in which unsound mind manifests itself, it is well known that when any medico-legal question connected with Insanity comes before a court of justice, doctrines which have been often refuted are reproduced, to puzzle and distract the jury; that the medical witnesses, counsel, and judge are frequently at variance; and that, amidst all this confusion, the result of the investigation is likely to depend rather upon some preconceived notions of the jurymen, than upon a proper appreciation of the evidence laid before them. Nor is this all; for both in civil and criminal cases it is no unusual occurrence to see one body of witnesses brought forward to prove that the individual, whose interests are at stake, is, and always has been, of perfectly sound mind, and even shrewd and intelligent; while others are adduced to assert as unhesitatingly, that he has been insane for years. Now, if ever there was a class of cases in which the maxim, "*testimonia pendenda non numeranda*," ought to be rigidly adhered to, it is this; an yet the evidence of some ignorant domestics, or bigoted old ladies, wi be held up as sufficient to counterbalance that of the most experience physicians, who have made mental aberration the study of their lives. Th jury will be told by counsel, that any one possessed of common sense i perfectly competent to decide whether a man is sane or insane—that they are not to be led away by the opinions of mad-doctors, who, however eminent they may be, are not infallible, and are liable, from their very practice, to have theories and crotchets of their own to support, while it is their interest to prove as many individuals as possible to be mad—that the law has recognised and distinctly defined the various forms of insanity, and that they are bound to consider this as the perfection of reason. Such observations are not confined to the bar; for they are echoed and re-echoed by a large proportion of daily newspapers, and by not a few other periodical publications, in which sounder views might be expected to be found. If the subject were not of so grave a nature, we might be amused at the very opposite pictures drawn of the consequences of an individual's being found to be insane, according as the case happens to be civil or criminal.

In a civil case the medical men are represented as being harsh, unfeeling, and malevolently anxious to deprive an unfortunate being of his liberty and of all the blessings of life. An asylum is depicted as a prison of the worst kind, the apartments as cells or dungeons in which the unhappy wretch is to linger for life, neglected by all, "fast bound in misery and iron" amidst the howls, shrieks, and curses of furious maniacs, the gibberings of idiots, and the threats and outrages of savage keepers, which render the place by day and by night a veritable pandemonium. Should the case, however be a criminal one, all is changed. The medical men are good-natured, benevolent enthusiasts, who, with morbid sentimentalism, endeavor to rescue the most atrocious criminals from just punishment, utterly regardless of their own honour and of the safety of the community, provided they can save an assassin, and overwhelm him with kindness. An assylum is described as a sort of "Agapemone," an "abode of love," a happy place in which the fortunate inmates revel in the enjoyment of ease and luxury, to which their less favored brethren, supposed to be possessed of sound mind, must ever remain strangers.

This is no exaggerated view of what has been gravely put forth to a sympathising public; and did space permit, we might amuse our readers with a few contrasted quotations, which would give anything but a flattering view of the consistency and knowledge of the subject possessed by those who lead the masses. The absurd inconsistency of the assertions alluded to above, has not been perceived by those whose attention is not specially attracted to the subject; because the opposite delineations have been given in different cases, not only separated from each other by some interval of time, but investigated under different circumstances and in distinct courts. In this way, however, greater evil is done. In the one class of cases an appeal is made to the benevolent, and in the other to the vindictive feelings; precisely, too, at the time when they are most likely to be excited otherwise, and therefore require to be checked, in order that the judgment may be calmly exercised. The only remedy for this unsatisfactory state of matters is the diffusion of accurate information respecting the various forms and treatment of insanity, among the non-professional as well as the professional members of the community; and we consider it to be a duty of our medical brethren to take every opportunity of promoting this desirable object. Already, thanks to the circulation of the Reports of the various public asylums of this country, those of the Commissioners in Lunacy, and more recently their admirable Letter to the Lord Chancellor, and, above all, Dr. Conolly's excellent 'Remonstrance,' which has gone through three editions in a very short space of time, men are beginning to feel that something more than the one-sided views of counsel, the fanciful hypotheses of metaphysicians, the definitions, of jurists, or the *dicta* of judges, is required to solve important questions, on which may depend the protection of the helpless, the peace and honour of families, and the safety of the lieges. We shall not, in this brief paper, attempt to supply the want that is felt. Be it our more humble task to direct attention to some important trials which have recently occurred, and the discussions to which these have given rise, in the hope that on a future occasion we may have an opportunity of considering the whole subject in the abstract.

The first case to which we shall advert is that of Nottidge *versus* Ripley and another, which is remarkable on many accounts. It not only brought to light the doctrines and practices of a sect of pestilent fanatics, which were little, if at all known beyond the narrow sphere of their machinations; but it called forth a rash and erroneous opinion from the presiding judge of one of our superior courts, which again, besides being promulgated and supported by a large and influential portion of the daily press, and entailing unmerited strictures and on the Commissioners in Lunacy (who were entitled to the highest respect for the kindness, judgment, and integrity with which they discharge the delicate and onerous duties of their office,) led 'though not a judgment, but a mere *obiter dictum*, to a most absurd decision of a Scotch court, in a case to which we shall afterwards allude. Out of evil, however, good has come; and we have in consequence the able Letter of Lord Ashley, addressed to the Lord Chancellor in the name of the Commissioners, and the powerful 'Remonstrance,' addressed, by Dr. Conolly, to the Lord Chief Baron, besides some able strictures in the *Lancet* and other periodicals. It must not for a moment be supposed from this, that the case in itself is either rare or important in any respect except that which we have just now stated. On the contrary, every one who has had charge of a moderately-sized asylum must have met with numerous cases of a similar nature; and from what has come to light respecting the unfortunate lady, no doubt of her insanity can be left in the mind of any competent judge. It is necessary, however, for the proper understanding of the subject, to give a brief view of all the circumstances.

It appears, then, from the documents prefixed to this paper, that there is or was a sect known as *Lampeters Lampeter Brethren*, from which sprung the leaders of the community that has now found a resting-place in "*Agapemone*" or the *Abode of Love.* The founders of this sect, or "*family*," as the members choose to call themselves, were three apostate priests and one deacon of the established church. It is not easy to state precisely the views entertained by this sect; and it is very doubtful if the leaders themselves could define them intelligibly. There can be no doubt that they have undergone several changes or modifications, and perhaps even at present they are not fixed. As far, however, as a careful examination of the statements of several of the members has enabled us to discover, we believe the following to be an accurate summary, though it contains contradictions, for which we of course are not responsible. They do not consider themselves to be a society or community, but simply a "family," of which they state God to be the head, and no one else under Him. They had a chapel which has since been converted into a refectory. They never pray, though they profess to praise and honour God in every thing—in eating, drinking, exercise, amusements, &c. They pay no respect to Sunday. They believe that the day of prayer has passed, that the day of grace has passed, that the day of judgment has arrived, and that in all they do, they are actuated by "the will of God," which is specially and directly declared to them, though in what way they cannot or will not explain. They profess to believe in the Trinity and the other doctrines of the church of England, though how they reconcile these with other parts of their creed it is impossible to comprehend. They seem to reckon those who oppose them, perhaps also those who do not join them, to be enemies to God. They state that all have their separate properties, yet that all live in common, the expenses being paid by the "managers," and any one of the "family" being allowed to have what money he or she may wish for. In a large building fifty or sixty of the "family" live in style, having carriages at their command, money in the bank, and a farm which they have purchased. Entertained with music and various games, and engaging in what they call "healthful exercises," happy in the present, and careless of the future, satisfied that in all they do they are guided by the "Will of God," and that in all they do they glorify him, their life is represented as one of ease and luxury. One of the exercises or games, called "hockey," which takes place in the open air, is joined in by both sexes on Sundays as well as other days. From the roof of their delectable mansion a banner is displayed, on which are depicted a *lion* and a *lamb*, and a scroll with the words "*Oh! Hail Holy Love!*" They appear to promote the intercourse of the sexes and marriage, especially between well-endowed ladies of a certain age and penniless men considerably their juniors. To us, both the emblems and the motto exhibited on their banner appear to be ludicrously appropriate. Of the emblems, one is typical of the resemblance of the leaders of the sect to a certain personage long celebrated in prose and verse, who "as a roaring *lion* walketh about seeking whom he may devour;" while the other appropriately represents the stray *lambs* on whom they feed. The motto and the name given by them to their abode are sufficiently explained by their practices. So much being premised, we have now to show the connexion of this sect with the case presently to be considered.

The father of the plaintiff, Miss Nottidge, died in 1844, and left a fortune of £6000 each to his five unmarried daughters, at their own disposal; and it is said that, in addition to this, each of them will receive £4000 on the death of their mother, an aged lady. There was a tendency to mental disease in the family; and one member at least had exhibited unequivocal symptoms of unsound mind. The daughters manifested a degree of facility or weakness of mind, which, accompanied by amiable feelings, and exalted unprincipled men of superior mental power, who could make their advances by appealing to their better feelings, and hypocritically clothing their "villany with odd ends stolen forth from holy writ." In 1843, and consequently before the death of their father, a young curate came to officiate in the neighbourhood of the family; and gained, by his style of preaching and other arts, such an ascendancy over the minds of the plaintiff and three of her sisters, as induced them to follow him to Brighton, and leave the home of their affectionate and aged parents, to listen to his fanatical ministrations. Such was his power over them, that, when their afflicted mother sent for them when their father was dying, they declared that they should not have obeyed the summons but for "the will of God." After the death of their father their anxious mother joined them at Brighton, with the natural wish to protect them if possible. This, however, was in vain; for their spiritual adviser, working on their fanaticism and folly, had become their absolute master; and, notwithstanding that their mother had declared her repugnance to his principles, and refused to receive him, he persecuted her so pertinaciously that she was obliged to lock herself up in her bedroom to prevent his impertinent intrusion. In the mean time, after being deprived of his office by the bishop, and wandering about for some time, this ex-curate at last settled with his followers at Charlinch, near Bridgewater, and began to build the mansion designated by the name of "Agapemone," to which the ladies above alluded to subscribed. The building at length advanced so far, that it was deemed expedient to work on the feelings of the faithful by the imposing ceremony of opening the chapel, which has since been converted into a banqueting hall. When the day arrived, the plaintiff and three of her sisters, who had left their mother's house for the purpose, were present. Immediately after the ceremony, it was discovered that it was "the will of God" that the three youngest should marry three of the brethren of the "Abode of Love," almost unknown to them before that day. Excited by the scene and its accompaniments, seduced by the sudden and unexpected offer of three extempore husbands, and blinded by fanaticism, they became the dupes of deep systematic villany; and accepting the dictate of the wily head of the sect as the declaration of the "will of God," consented to bestow themselves and their fortunes on three needy men, considerably their juniors. The plaintiff at last returned, disgusted and vexed, and with tears in her eyes informed her mother of what had taken place. Her farther communications on this occasion we give in Mrs. Nottidge's own words, as uttered in evidence:

> "She then told me that 'Brother Thomas was coming to sleep there that night.' I said that I should not consent to that. This 'Brother Thomas' afterwards married my daughter Agnes. The plaintiff said that it was of no use my objecting to his coming, as it was the 'will of God' that he should, and in he would come; and accordingly in he came at ten o'clock at night. I said that I should leave the house if this were done, as it was very improper. My daughters went up to him, and when they came down they told me that it was the 'will of God,' and stop there he would. *In consequence of this, I went to a friend's house that night, and next day, when he had left, I returned. They then told me that he said he should return at night, and that it was the will of God that another man, Turner, should also come with him. I objected, and they said that it was the 'will of God,' and they must submit.* I then wrote to Mr. Ripley (her son-in-law, the defendant) to come down. *It was impossible for any man to have been more kind than he had been to all of us at*

> *all times.* I afterwards heard that the marriages were to take place at Swansea, and I went down to prevent them; but it was of no use, for they said that it was the 'will of God' that they should be married."

Married accordingly they were, without settlements or provisions of any kind being made, "for," to quote Dr. Conolly's observation,

> 'Rigour now has gone to bed;
> And advice with scrupulous head;'

and the Abode of Love receives, in return for the three extemporaneous husbands, eighteen thousand pounds, with the expectation of twelve thousand more at the death of the mother of these impromptu wives." So much for three of the four ladies. Mrs. Nottidge returns home with an aching heart to the plaintiff and another daughter, and after a time the former is suddenly removed by two of the brethren of Agapemone, who leave the disconsolate mother no clue to the place of her concealment. Let the afflicted lady, however, narrate what followed, in her own words:

> "Mr. Starkie and Mr. Turner came to Rose Hill. From what was said to her, the plaintiff told me she must go with them, *that it was like tearing the flesh from her bones to leave me*, but that it was the 'will of God' that she should go, and go she must. *The men gave her two hours to pack up, and at the expiration of that period, they drove up in a carriage and took her away.* That was the last time I saw my daughter till she was brought back by the defendants (the witness's son-in-law and son.) *I am now 76 years of age.* I went to Weymouth to find my daughter, and bring her away. *I had heard that she was living at Weymouth in the greatest sin and iniquity. I told Mr. Ripley,* (her son-in-law) *of what I had heard from several friends, and from many letters.* . . . . When I was at Weymouth, I saw two of my other daughters, but they refused to give me any information as to where the plaintiff was. I was six weeks making my search, and was not successful. I offered a reward, but it was of no use."

In all her proceedings this lady seems to have taken council with her brother, her son, and her son-in-law. Next to herself, they were the individuals most interested in the welfare of the patient, and could have no motive whatever to take any measures disadvantageous to her, but, on the contrary, acted kindly, prudently, and judiciously.

A clue having been obtained to the residence of the plaintiff, her brother and brother-in-law, at the request of her mother, who was in a most wretched state of mind, immediately went down for the purpose of bringing her home. On reaching the place of her concealment, where she was living in lodgings with Mrs. Prince, the wife of the Chief of Agapemone, they found their way into the room where the ladies were sitting, and told her that her mother was very ill, and most anxious to see her. Miss Nottidge declined, and it was not unlikely that she was confirmed in her resolution not to go by Mrs. Prince, who was present. Finding her determined not to accompany them, they carried her, dressed as she was, into a carriage, and conveyed her to London, not for the purpose of dragging her to an asylum, as stated by Mr. Cockburn in his opening speech, but of removing her from what had been represented by others, and believed by her relatives, to be a scene of moral contamination, and placing her under the protection of her mother. We have the witnesses for the prosecution describing her cries, screams, and struggles, and Mr. Cockburn dwelling on the fact of her brother and brother-in-law forcing her into the carriage without either bonnet, or shawl, or shoes, with nothing on her feet but carpet slippers, and driving "as fast as the horses could put their feet to the ground," till they reached town, and then proceeding to place her in one of those many madhouses called asylums. Now it is not at all likely that Miss Nottidge would receive rough treatment from her brother and brother-in-law, the latter of whom is stated by the witnesses for the prosecution, as well as by Mrs. Nottidge, to have acted on every occasion with the greatest kindness to all of the family. The plain unvarnished truth seems to be, that, finding it in vain to induce her to visit her mother, who was represented to her to be very ill, and anxious to see her, they had used a little gentle compulsion, placed her in the carriage dressed as she was, and brought her with as little delay as possible to London. We ourselves do not believe that she screamed as described by the witnesses, but even if she did, we should not consider that as any proof of rough usage. It is not true that she was taken at once to an asylum, nor is it true that such a step was determined on. We again quote Mrs. Nottidge's testimony :

> "I saw them (her son and son-in-law) with my daughter on their return. She was brought at once to me, and I conversed with her. This was at Mr. Ripley's in Woburn place *She told me that it was the 'will of God' that she should be at Charlinge on the Wednesday. This was on the Monday* (10th Nov., 1846). *I put down on paper what she said. It was when I spoke about* MR. PRINCE *that she said, 'I know no such person.* GOD NOW DWELLS ONLY AT CHARLINGE IN THE FLESH OF HIM I ONCE KNEW AS MR. PRINCE. GOD WHO MADE ME AND ALL THE WORLD IS NOW MANIFEST IN HIM WHOM I ONCE CALLED MR. PRINCE. HE HAS ENTERED HIS TABERNACLE OF FLESH AMONG MEN, AND I HAVE SEEN GOD FACE TO FACE. HE WILL DELIVER ME WHEREVER I AM TAKEN.' *After this I sent for my brother, who saw her, and by his advice the medical men were called in.*"

Does this show anything like precipitation in sending the patient to an asylum ? In her cross-examination, however, she goes farther, and shows that though convinced of her daughter's insanity, she was anxious to avoid the necessity of taking such a step.

> "Cross examined,—I had no communication from my daughter from the time Mr. Starkie took her away, until Mr. Ripley and my son brought her back. At this conversation *my daughter said that* SHE SHOULD NEVER DIE. *If she would have returned to me to Rose Hill, in the care of a keeper or otherwise, I would have taken her to Rose Hill,* but she said she should go where it was 'God's will.' My intention of getting her up to town, was to keep her under my own roof with a keeper if necessary. *I did not wish to have a keeper if she would have remained under my roof and control without one,* and then, if she still insisted on returning to Charlinge, I meant to have put her into a Lunatic Asylum.

The medical man of the family was consulted, but properly declined to act ; as, being a connexion of Dr. Stillwell, under whose care it was proposed to place the patient in the event of her being found insane, he was prevented by law from granting a certificate. Mr. Morton, the surgeon, was called in on the 11th ; and after remaining with her sufficiently long to satisfy himself as to the state of her mind, certified her to be insane, appending to the document, as he was bound by law to do, a statement of the grounds on which he came to that conclusion, viz. : "That she had of late estranged herself from her mother's house, where she had previously resided, to follow a person of the name of Prince, whom she believed to be Almighty God, and herself immortal."

Dr. Rowland also was called in, and came to the same conclusion. The documents required by law having been completed, arrangements were made for placing Miss Nottidge under the care of Dr. Stillwell; and on the evening of the 12th November she arrived at the institution, accompanied by her mother. For two days thereafter she refused to speak to Dr. Stillwell on the subject of her delusions, simply declaring that it was "the will of God, and that all was in his hands." In these circumstances he very properly, as the sequel showed, determined on laying a statement of the case before the Commissioners in Lunacy, and had an interview with them at their office. Within a short time she was visited by two of the Commissioners, who, after a long private interview with her, came to the conclusion that she was properly detained. At first she was melancholy, refused to wear a bonnet or to walk in the open air, seldom entered into conversation, and spent much of her time walking up and down the room, singing what she termed praises, and making use of no intelligible words. She daily expressed her surprise that "God did not send for her," stating that she was perfectly happy in her mind, knowing that He knew all things, and that she could not be detained unless it was His will. *Every night on going to bed she packed all her clothes up, expecting God would send for her during the night, and this she continued to do so long as she remained at Moorcroft.* In the course of time, having become more cheerful and communicative, she told Dr. Stillwell that *Mr. Prince was God manifest in the flesh;* that the day of grace had passed, and the day of judgment had come; that *Mr. Prince had rendered her immortal;* that *she should not die*, that *she should not be buried in a coffin*, as other persons are; and that *she should be taken up to heaven in the twinkling of an eye.* On his expressing astonishment at this, she instanced the translation of Elijah. She never prayed, nor read the Bible, declaring it to be useless to do so, as it was now all completed. She refused to write to any one, alleging that God knew everything—that he knew where she was, and would fetch her when he thought proper. Notwithstanding this, she was improving, though slowly, under Dr. Stillwell's judicious care; and in the summer of 1847 she was so much better, that hopes were entertained of her ultimate recovery. Her improvement was manifested by her being cheerful and tranquil in her deportment, by her resuming her bonnet, and paying attention to her dress, by her seldom speaking of her delusions, and by her general good health. Encouraged by these symptoms, at her urgent request, and on her solemnly promising not to withdraw herself from the institution without letting him know previously, Dr. Stillwell permitted her to walk about unattended, a privilege which, in many asylums, is accorded, not only to improving patients, but even to the incurable, when, from circumstances known to the medical officer, he feels that they can be trusted. This privilege she continued to enjoy without abusing it, and all seemed to be going on well till the 6th January, 1848, when on the pretence of going to see Mrs. Stillwell, she walked out, and made her escape to London. That she was still of unsound mind, is manifest from expressions contained in a letter which she sent to Dr. Stillwell from the station, for the purpose of allaying his fears. Among others are the following: "*I firmly believe it* (the going away) *is the will of God.*" "*Fear nothing; God will provide.*" "*The Lord is my helper;*" and these expressions were written at the very time that she was violating a solemn engagement. On the 8th of January she was brought back, and from this period till the 15th of May, 1848, when she was discharged, she repeated from time to time all her delusions. She had entirely lost all natural affection for her mother and friends. Dr. Stillwell, too, it must be remarked, stated in evidence that he was of opinion that Mr. Prince had such an influence over Miss Nottidge, that she would have done anything, be it what it might, which he might tell her to do.

It was stated by Mr. Cockburn in his opening speech for the plaintiff, that Mr. Cobb, her brother-in-law, one of the extemporaneous husbands provided for her sisters at Agapemone, as mentioned above, had been rudely turned out of Dr. Stillwell's institution, when the lady was brought back after her escape; but that the relations having now ascertained where it was that the plaintiff was confined, availed themselves of the power of calling in the aid of the Commissioners of Lunacy, by whom an inquiry was set on foot which terminated in the *instant* release of the lady from the *cruel incarceration* to which she had been subjected by the defendants for so many months. In his concluding speech, too, he speaks of "*the odious incarceration.*" From all this any one would infer that after Miss Nottidge had been dragged away from her friends, that she had been consigned to some dungeon, that no one interested in her knew at first where she was, that, when this was discovered, they were refused access to her, and that the Commissioners in Lunacy were a set of supine officials, who required to be roused to their duty by the importunity of afflicted relatives, though to be sure when they did wake up, they ordered, as a tardy compensation for their neglect, the instant release of the victim of oppression. Now the reverse of all this is the truth. Miss Nottidge was removed from the pernicious influence of the fanatics of Agapemone, who had been the direct means of unhinging her mind, and who were bent on plundering her of her means of subsistence. All intercourse with them was very properly prohibited, as tendiug not only to prevent her from being cured, but to increase her malady. When brought home she would have been carefully tended there by an affectionate mother, had she consented to place herself under her natural guardian, or had it appeared at all probable that under this arrangement she could have recovered. There being no hope of this, she was sent accompanied by her mother to an establishment expressly devoted to patients of the higher ranks of society labouring under diseases similar to hers—an establishment described by one of the Commissioners as one of the best-conducted in the country, where besides her own room, she had the private library of Dr. Stillwell as a sitting-room, and the use of a close or open carriage, and where it is obvious she was kindly treated, from the very fact, that, on making her escape, she lost no time in writing to Dr. Stillwell, even from the station, for the sole purpose of relieving his mind from anxiety. Again, so far was it from being the case that no one knew the place of her abode, that, besides her mother, uncle, brother, and brother-in-law, it was known to Mr. Morton, Dr. Rowland, Mr. Stedman, the Commissioners in Lunacy, and their Secretary, Dr. Conolly, Dr. Marshall Hall, and others, not one of whom had the least interest in detaining her, and all of whom were perfectly convinced of her insanity. Instead of the Commissioners in Luancy remaining in supine inactivity, till roused by the *soidisant* friends of the patient, we find that their attention was drawn to the case by Dr. Stillwell himself shortly after her arrival at his establishment, and that, during her residence there she was privately examined no less than eight times by six of those Commissioners, three of them being physicians, Drs. Turner, Prichard, and Hume, and three lawyers, Messrs. Procter, Mylne, and Campbell. The result of all these examinations was that the Commissioners, medical as well as non-medical, were convinced that Miss Nottidge was, to the last, of unsound mind; and it was only after mature deliberation, and by a majority, that influenced by motives of mistaken humanity, they resolved, unfortunately for herself and others, to allow her to withdraw from that care and treatment which alone afforded the slightest chance of ultimate recovery. Thus left to her own control, she acted precisely as every man of experience in such cases, could easily have predicted she would act. She abandoned her mother and all her real friends; and with the perverse pertinacity of insane fanaticism, rushed instantly into those scenes, and abandoned herself to those influences, which, besides being the exciting causes of her malady, were of all others the best calculated to preclude any hope of a cure.

"Ye *would* be dupes and victims, and ye *are*."

Once within the influence of this modern Mokanna, she speedily transferred to him, not her reason, for of that he had deprived her already, but what was of more consequence in his estimation, her worldly goods; for though "the day of prayer has passed," "the day of grace has passed," and "the day of judgment has arrived," *six thousand pounds* in hand, and *four thousand more* in reversion, were not to be trifled with; and the "god of Agapemone," as he is happily styled by Dr. Conolly, proceeded without fear of moths or thieves, to lay up his treasure on earth, regardless of any inference which may be drawn from his conduct. In his exultation at the success of his machinations, we imagine him using the words, slightly altered, put into the mouth of his prototype of Khorassan by the poet:

"So shall they build on altars in their zeal,
Where knaves shall minister, and fools shall kneel;
Where Faith may mutter o'er her mystic spell,
Written in *Cash*—and Bigotry may swell
The sail he spreads for Heaven with blasts of Hell."

Fearful, however, that some matter of fact process of law might compel him to disgorge his unhallowed gains, this modern prophet or false god, suddenly transforming himself into the semblance of that being who of yore sorely vexed the holy man of Uz, became the Διάβολος or accuser of the family of his victim, and an action was raised against them concluding for £1000 damages. We know well that the action was raised in the name of Miss Nottidge—of that mild and affectionate being who declared in the agony of her separation from her mother, that "it was like tearing the flesh from her bones." Any one, however, can easily see that she was not the active, but the passive agent in the matter; and that the prime mover in this unfeeling and unprincipled proceeding was the apostate priest, the false prophet, the "god of Agapemone," "this tempter ere accuser," who, besides the causing of the insanity of his victim, and other misdeeds to which we cannot here more particularly allude, will have yet to answer for the cold-blooded, calculating selfishness, with which he has aggravated the sufferings of a much afflicted, affectionate mother, laid bare the sorrows of an amiable family, and exposed frailties which men in general would generously wish to conceal. But enough of this.

An action at law was determined on, and a ready tool in the shape of an attorney was found among the brotherhood of Agapemone; for even in this abode of love, an attorney is necessary to secure peace and enjoyment; though if it were true that the "day of judgment has arrived," we might in our simplicity infer that there would be an end to all law-suits. This, however, does not appear to be a correct inference; and it may be some consolation to all classes of the legal profession to know that, if the creed of the "family" be correct, when—

> "The cloud capp'd towers, the gorgeous palaces,
> The solemn temples, the great globe itself,
> Yea, all which it inherit shall dissolve;"

they may yet peradventure find employment for their talents and their ingenuity.

The necessary preliminary steps having been taken, the case came on for trial before the Lord Chief Baron on 23d of June, and the proceedings lasted for three days. Mr. Cockburn and Mr. M. Smith were counsel for the plaintiff, and Sir F. Thesiger, Mr. Crowder, and Mr. Bovell, for the defendants, who were the plaintiff's brother-in-law and brother. The plaintiff, Miss Nottidge, claimed damages for her incarceration in a lunatic asylum, under the pretence that she was of unsound mind, when on the contrary she was perfectly sane; and the defendants pleaded, 1st, not guilty; 2d, that the plaintiff was of unsound mind, and that it was unsafe for herself and others that she should be at large.

Mr. Cockburn opened the case for the plaintiff in a speech adorned with all the art of rhetoric, and calculated not merely to impress the minds of the jury in favour of his client, but to rouse their passions against the defendants. He represented Miss Nottidge as the victim of a family conspiracy, who had been surreptitiously removed from her friends, and concealed from the world in the cells of a madhouse, where she had undergone misery for a long period. We have already stated the facts of the case, and it is unnecessary to repeat them here. Though these are very different from Mr. Cockburn's version, we cannot find fault with him, as he doubtless spoke from his brief; and we believe that the ethical rule adopted by counsel is to take for granted whatever the attorney employing them may please to assert, and as a learned ex-chancellor once said in substance if not in words, *per fas, per nefas*, to make out the case of his client, regardless alike of himself and his reputation, or the suffering he may entail on others in the so-called discharge of his duty.

In support of the plaintiff's case, eleven witnesses were adduced, all of whom be it remembered, were connected with Agapemone, and therefore, in the eyes of unprejudiced men, suspicious evidence. Not that we mean for a moment to insinuate that they deposed to anything which they did not believe; but warped in their whole feelings and judgment, as the circumstances in which they were placed, and the evidence which they gave, showed them to be, their testimony was not of a nature to deserve confidence. Be this as it may, after some of these witnesses had been examined, Sir F. Thesiger, on behalf of the defendants, admitted, what ought never to have been disputed, that the plaintiff had been removed from

Agapemone against her will; and the remainder of the trial was occupied in endeavoring to ascertain whether this had been justifiable or not—in other words, whether the plaintiff had been in that state of mind which justified the defenders and others, her nearest and dearest relatives, in so far interfering with her personal liberty, as afforded the best chance of a cure, or at all events protected her person and her property from any danger.

Of the eleven witnesses for the plaintiff, all except the first who was not examined on the subject, deposed that Miss Nottidge was perfectly sane—that she was quiet, amiable, gentle, and lady-like, in her manners—and that she showed no symptom of being dangerous to herself or to others. Some of them declared *that she was as sane on her return from Agapemone as she had been before her removal thence;* and to those to whom the question was put, declared that *any one who believed Mr. Prince to be God must be insane.* Fanatical and warped in their judgment as they were, they felt themselves obliged to admit this; and had they not done so, their evidence might very properly have been rejected on more grounds than one. Not that we think that their evidence ought to have been received, except, as a Scotch lawyer would say, *cum nota;* and we suspect that in Scotland, where the oath adminstered is both more solemn and more stringent, any one declaring that he believed that the day of prayer was passed, that the day of grace was passed, and that the day of judgment had arrived, would have been declared to be an incompetent witness.*

In opposition to this partial and inconclusive evidence, eleven unexceptional witnesses were called, nine, if not ten, of whom established to our satisfaction the insanity of the plaintiff, to whom, it must be borne in mind, almost all of them were strangers, who could have no object in proving her to be insane. Most of these witnesses, too, were the best qualified to form an opinion on the question, and they were unanimous in their conclusions. The very mention of the names will be sufficient proof of what we have stated; and accordingly we shall present the reader with a list of the witnesses for the plaintiff and defendants, attaching to each a description of their qualifications.

For the Plaintiff.

1. Waterman, George. Husband of the next witness. Not examined on the plaintiff's state of mind.
2. Waterman, Joan. Wife of the last witness; Mrs. Prince and Miss Nottidge lived with her while the "abode of love" was being finished.
3. Waterman, Eliza. Daughter of the preceding witnesses.
4. Price, Lewis. Apostate priest of the Church of England, and *extempore* husband of one of the plaintiff's sisters, as mentioned above, also one of the leaders of "Agapemone."

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* The oath administered in Scotland is as follows: "I swear by Almighty God, and as *I shall answer to God at the great day of judgment*, I will tell the truth, the whole truth, and nothing but the truth." This, administered by the presiding judge, who stands up, amid dead silence, and holding up his right hand, with his face directed to the witness, who, in like manner, holding up his right hand, repeats the words after him, produces an effect, not only on the witness, but on the auditors, which only the most hardened, and scarcely even those, can withstand Compare this with the mode in which an oath is administered in civil and criminal cases in this country. It is quite clear, that any one believing that the day of judgment has arrived, and that in all he does he is actuated by God, is a very suspicious sort of witness.

5. Cobb, William. Civil Engineer, extempore husband of one of the plaintiff's sisters, and one of the brethren of "Agapemone."

6. Prince, Mrs. Wife of the "god of Agapemone."

Price, Harriet. Wife of witness No. 4, sister of the plaintiff, one of those so speedily mated, as mentioned above; and one of the sisters of "Agapemone."

8. Cobb, Mrs. Wife of witness, No. 5, sister of the plaintiff one of those so speedily mated, as mentioned above; and one of the sisters of "Agapemone.'

9. Thomas, G. V. Apostate deacon of the Church of England, extempore husband of one of the plaintiff's sisters, and one of the brethren of "Agapemone."

10. Mayburn, Arthur. Surgeon Apothecary to "Agapemone," and one of the brotherhood.

11. Williams, John. "Independent gentleman," farmer, one of the brotherhood of "Agapemone," and we suppose buffoon to the establishment.*

Why was the plaintiff's case rested on evidence like this? Simply because no other could be adduced. We may be perfectly sure that could unexceptional witnesses have been obtained, they would have been called. But, no! No medical man of any reputation could be got to pronounce the plaintiff to be of sound mind, and the case had to be rested on the evidence of individuals connected with the "abode of love," and the oratorical powers of the counsel employed.

For the Defendants.

1. Nottidge, Mrs. The aged, aggrieved, and persecuted mother of the plaintiff; by whose request, and with whose approbation, every step had been taken to restore her, if possible, to sanity, and who was most anxious, had it been at all practicable, to have avoided sending her to an asylum.

2. Pepys, John. Brother of the last witness; and, consequently, uncle of the plaintiff; a man of independent fortune, and most affectionately attached to his niece.

3. Morton, Thomas. Fellow of the College of Surgeons of England, and Surgeon to University College Hospital, and the Queen's Prison.

4. Rowland, Dr. A physician of twenty-two years standing, and accustomed to such cases.

5. Stillwell, Dr. Physician to the Asylum at Hellingdon, under whose care Miss Nottidge was placed, who had the most ample means of ascertaining the state of her mind, and who, so far from making any mystery of her residence in his establishment, not only returned her case in accordance with the Act of Parliament, but made a special report to the Commissioners in Lunacy, and requested their attention to the case.

6. Luttwidge, R. W. S. The talented and experienced secretary to the

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* We had intended to have made some remarks on the evidence of this witness, but, on consideration, we felt that it was not worth commenting on. We may, however, state, that the exhibition which he made was anything but creditable to himself or the "family." We would advise his friends, if he have any, to look after him, as, though apparently good-humoured, it may ultimately appear that he is an individual who is incapable of taking care of himself or his property.

Commissioners in Lunacy, and formerly Metropolitan Commissioner in Lunacy.

7. Turner, Dr.; 8. Mylne, Mr.; 9. Procter, Mr.—Three Commissioners in Lunacy, men of high talent, great acquirements, and extensive experience, whose daily duties bring them in contact with cases like the present, and who had ample opportunities of ascertaining the state of the plaintiff's mind.

10. A Clerk from the Stock Office.

11. Stedman, Mr. A gentleman in extensive practice, the confidential medical adviser of one of the defendants, convinced of the plaintiff's unsoundness of mind, but to avoid even the appearance of evil, counselling the calling in of other medical men,—witnesses 3 and 4 for the plaintiff.

"Look here upon this picture, and on that."

The plaintiff's witnesses are all connected with "Agapemone," eight of them being either the deceivers or the dupes of that establishment. All swear that Miss Nottidge was sane,—that is, that they saw no indications of insanity in her words or actions. All, to whom the question was put, admitted that any one believing Mr. Prince to be God must be insane. This is the amount of the evidence for the plaintiff, if we except the development of monstrous villainy, working on fanaticism, to which we have already alluded. From this it is clear that the evidence of the sanity of Miss Nottidge is altogether of a negative kind. Five hundred individuals may pass the door of a house where a theft is being committed, and may conscientiously swear not only that they did not see the accused commit the theft, but that no theft at all was committed; but this will not rebut the evidence of three unexceptionable witnesses who saw the crime perpetrated. Apply this on the present occasion. All that the witnesses prove is, that they did not from any circumstances which came under their observation believe the plaintiff to be insane. This, we repeat is merely negative evidence, and of no value when we know well how far men of greater powers of observation than any of the witnesses adduced for the plaintiff, have been deceived respecting the state of mind of a patient of whose insanity there could not be the shadow of a doubt.

In opposition, however, to the evidence of individuals, to whose perspicacity we should be sorry to trust, even on the most trifling affairs of life, we have the testimony of enlightened, experienced, and unprejudiced men, to show that Miss Nottidge was insane, both before, during, and after her confinement. Her mother, who was most tenderly attached to her, and who would naturally be the last person to discover her insanity, was convinced of the unhappy state of her mind. The medical men, called on to pronounce an opinion on the state of her mind, and who were, in so doing, to all intents and purposes acting judicially, declared her to be insane. Dr. Stillwell, under whose charge she was, had no doubt on the subject; and the Commissioners in Lunacy, who are virtually Judges, and act as Judges, within the jurisdiction committed to them by Act of Parliament, as much as any of the Judges of our supreme Courts, came, after mature deliberation, and with all the facts before them, to the conclusion that she was of unsound mind. Dr. Conolly, one of the highest authorities on the subject of insanity, and one who has protested against the indiscriminate confinement of persons of unsound mind, and

Dr. Marshall Hall, whose attention for years has been devoted to the nervous system in all its states, both physiological and pathological, have unequivocally expressed their conviction that Miss Nottidge was insane, and required to be placed under treatment such as that to which she was subjected. Now by which class of witnesses ought a jury to be guided in a case of this kind? By fanatics, fools, and prejudiced persons, who could only depone that they saw no insanity in the plaintiff? or by experienced, unprejudiced men, daily engaged in examining such cases, considering such questions, and giving decisions on the same, to which men in general pay as high respect as they do to the judgments of the courts of law? Undoubtedly by the latter. Still, willing as we are to risk the case on this, we go further. The witnesses for the defence stated positive facts, of which they were cognisant, and which convinced them, as they would convince any calm, unprejudiced man of common sense, that Miss Nottidge was insane. These, though satisfactory, are few, and we shall briefly mention them:

1. There was a predisposition to insanity.

2. This predisposition was increased by the cultivation of strong and unenlightened religious feelings, which led her to attach herself to a body of individuals, who encouraged every manifestation of fanaticism.

3. Being predisposed to insanity, and having become fanatic by a very simple transition, she began to entertain delusions.

4. She exhibited a very common symptom of this form of insanity, a weak facility of mind, which made her the pliant dupe of those who concurred in her delusions, combined with determined obstinacy when her fancies were opposed.

5. Despite some lingering feeling of natural affection, she was induced to separate herself from an affectionate mother whom she loved, and ultimately, when the disease increased, to repudiate her altogether, and deny that she had a mother.

6. She believed Mr. Prince to be God, and not only did not deny that this was her belief, but voluntarily declared it in the strongest language.

7. She declared that she would never die, but that she would be translated to heaven like Elijah.

8. She neglected her dress, and refused to attire herself in suitable clothes.

9. She refused to take necessary exercise, and was inclined to be taciturn.

10. She sang untelligible words, which she called praises.

11. She would not explain herself to the Commissioners, though she knew who they were. It is true that she afterwards pretended that she did not know that they could liberate her, and that, therefore, she did not speak to them. We know the insane too well to be deceived by this. We have again and again heard such statements made by patients who had been repeatedly informed of the powers of their visitors, and urged to lay their cases before them, but who, instead of doing so, refused to hold any conversation with them, or remained perfectly silent, and after they had gone away, ridiculed and made disparaging observations on them. At some future period, however, they would change their line of conduct, and professing the greatest respect for them, and satisfaction at seeing them, declare that they never before were aware of who their visitors were, or of the powers which they possessed; and this especially when it was their

object to show that they were the victims of a conspiracy to deprive them of their property, and, as a preliminary step to effect this, of their liberty.

12. To the very last, Miss Nottidge, from time to time, betrayed her delusions, and every night packed up her clothes that she might be ready when God came for her, which she daily expected; as if, should such a miracle be performed in her favour, there could have been any difficulty in including her clothes as well as herself in such superhuman interference.

13. After her unfortunate dismissal from the asylum where she was kindly and judiciously treated, she, with the weakness and obstinacy characteristic of the form of the disease under which she laboured, hurried to Agapemone, and placed, at the mercy of her idol, the money which had been left for her maintenance, thus running the risk of poverty, or even absolute starvation, and careless of everything, so long as she could follow the dictates of her insane impulses.

In addition to all this, we have no doubt that a physician accustomed to observe the insane would have detected, in the expression of her countenance, some proof of the state of her mind.

Thus, in Miss Nottidge's case, we have almost every mark of insanity;—predisposition, gradual alteration of character, estrangement from those near and dear to her, weak facility, combined with obstinacy, positive delusions, insane actions, resulting from these delusions, disregard of personal appearance, dress, &c., general weakness of mind. Even the witnesses for the plaintiff declared that they would consider any one to be insane, who believed Mr. Prince to be God. It is true that they stated that they never heard Miss Nottidge express this belief; but the fact rests on clear and distinct evidence, that she not only entertained and expressed, but acted on this belief.

It is hardly necessary to state, in conclusion, that we have no doubt that Miss Nottidge was of unsound mind. Indeed, we cannot conceive that any one competent to judge will come to any other conclusion.

But it may be said that though Miss Nottidge was insane, she was not so far insane, or that her insanity was not of such a description, as to justify the abridgement of her personal liberty; and it therefore becomes necessary to consider the case in this point of view.

In the seclusion of a patient of unsound mind, whether in an hospital, an asylum, or a private house, three objects are sought to be attained: first, The protection of the community; secondly, the protection of the patient; and, thirdly, the cure, or alleviation, or (failing both) the retarding of the progress of the disease. Unless the confinement can be shown to be necessary on one or more of these grounds, it is not justifiable; though one will be quite sufficient. On each of these we beg to offer a few observations:

1st. *Protection of the Community.* No one disputes the propriety of confining the furious or sullen maniac, the violent, the epileptic, or the irascible imbecile and idiot; and, therefore, nothing need be said here on these cases, further than that it is not merely during their paroxysms, that their separation from the community at large is necessary. There are, however, other forms of the disease, in which the necessity of seclusion for the protection of the community is either not admitted, or admitted reluctantly when too late. Scarcely a week passes, in which there is not the report of some fearful tragedy perpetrated by one considered to be harmless. The father of a large family, attached to his children, amiable in all his domestic relations, sober, industrious, and trustworthy, is observed by his friends to become anxious, and at times low spirited. Trifles fret him. He expresses fears for the welfare of his children and friends. He looks haggard, his sleep is disturbed, and his usual energy impaired. His friends endeavour to soothe him, and assure him that all is well, and that he has no reason to despond. This is quite true; but he continues to despond. Some of the more judicious of his companions tell him that his bodily health is alone affected, and advise him to apply to a medical man. He declares this to be useless; but, by dint of importunity, he is forced to have advice In the meantime he betrays no marked delusion, except the gloomy view which he takes of every subject connected with himself, his family or his friends. He goes about his usual occupations in a rational manner, though with less energy than usual; he transacts business, especially with strangers, so accurately and judiciously, that they have not only no suspicion of his insanity, but would be ready to swear, in the most unequivocal terms, that he was perfectly sane. The medical man whom he is reluctantly induced to consult, tells him, and perhaps in the circumstances correctly enough, that he is only dyspeptic, or that his general health is deranged, that he will soon be well, &c. The patient does not believe him, and either does not follow his directions, or follows them very negligently. In the mean time the disease advances, and some morning the neighbourhood is thrown into a state of consternation and horror by hearing that this honest, sober, industrious man, this affectionate husband and father, this benevolent and judicious friend, has put to death most of his children, and committed suicide. This is no imaginary case. Unfortunately the newspapers furnish too many, of which the above may be taken as a type. After the dreadful catastrophe has taken place, every one sees that the man has been insane for months, and all agree in lamenting that he had *not been sooner looked after.* Vain and ignorant lamentation! The very individuals who are loud in uttering it, would have stepped forward a few days before to resist any attempt made to place the unfortunate being under that treatment, which would, in all probability, have restored him to reason, and saved the lives of his children. Nay more, these very same individuals,—should the patient have been treated in an asylum, and afterwards, under some change of the form of his malady, manage to be freed from restraint, and bring an action,—would, in all probability, find a verdict for the plaintiff, with heavy damages. Now, at present, we leave out of consideration what is best for the patient himself: we look merely to the protection of the community; and no one will hesitate, on viewing such a case as this, in assenting to the propriety of preventing such a patient from committing violence.

But it may be asked, how is it to be ascertained that a patient like this will commit violence; and whether we mean to assert that we would deprive of his liberty every man who laboured under despondency. If we mistake not, there is less difficulty in solving these questions than appears at first sight. We have in the first place before us the melancholy experience of the danger of trifling with such cases, as shown in the tragic narratives to be met with so freequently in the newspapers. This ought to render all interested cautious and watchful. In the second place, we have the authority of all medical men of experience in insanity, that such cases do not get well unless subjected to treatment, but, on the contrary, become worse. There is, therefore, good reason for interfering. The extent of the interference is next to be considered. This must be measured by the stage of the disease, and may be thus briefly stated. When an individual becomes despondent without any apparent cause, at the same time that his bodily health is affected, and that he looks anxious and haggard, and gives expression to gloomy forebodings regarding himself, his family, or his friends, while he can give no reason for them, he should immediately be carefully watched. By this it is not intended that he should be subjected to a system of unnecessary espionage, which would only aggravate his disease, but that he should, without his knowledge, be watched, and that this if possible should be accomplished by the kind attentions of friends, or others in whom he has confidence. Along with this, medical advice must be taken; for it cannot be too often reiterated, that, in insanity, the probability of cure depends on early treatment. It is of consequence, too, we must remark, that in this stage of the disease the medical man consulted should have the confidence of the patient, as he will be induced to follow his advice, if he will follow any. This, in many cases, will be all that is necessary to conduct the case to a successful termination. But the patient may refuse to take any advice, he may follow the directions very imperfectly, or the means used may not produce the desired effect; and consequently in any of these circumstances the disease will, in all probability, be aggravated. Should this be the case, there can be no doubt of the propriety of removing the sufferer to a proper establishment, if for no other reason than to protect others from the effects of his emotions and propensities.

Again, it is commonly supposed that the declared suicidal patient is dangerous only to himself, and not to others. This is a very great mistake, because, as is well known by those who have studied the subject, suicidal and homicidal insanity are nearly akin. We cannot enter on this minutely at present, as it would require a separate paper to illustrate fully our views. A recent case, however, may be mentioned. An old man who was known to be inclined, or rather we should say, to be determined to commit suicide, was left alone with his granddaughter, a mere girl. He attempted to attain his object; but, being prevented by the girl, murdered her for her interference. For further illustration of this subject, we may refer to Mr. Sampson's work on 'Criminal Jurisprudence Considered in Relation to Cerebral Organization,' which, written with a different object, is the more valuable.* Other justificatory reasons might be given curtailing the personal liberty of the class of patients now alluded to; but as we consider the question only in reference to the safety of the community, it is unnecessary to enter on them at present.

The danger of trusting imbecile patients who had been looked upon as harmless, has been frequently proved by sad disasters. The amiable French imbecile who obligingly cut off the head of a melancholic fellow patient, is a well-known illustration; the following came under our own notice. A girl imbecile, or almost idiotic from birth, was so quiet and so fond of children, that she was trusted to take care of the infants and young children of the hamlet where she resided. This had gone on for years. One morning however, she threw two or three of them into a millstream, from which they were with difficulty rescued. She was then discovered to be dangerous. It is obvious that such patients should be under strict surveillance, to ensure the safety of the public.

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* In referring to Mr. Sampson's work, we beg distinctly to state, that we do not adopt all his doctrines. It, however, deserves the serious attention, not only of medical men, but of those who are, by their position, called upon either to administer, or, what is still more, to assist in making laws.

There is a class of epileptics who become dangerous either before or after, and sometimes both before and after, their fits. However harmless or rational such individuals may appear to be during the intervals, it is absolutely necessary that they should not be left free from control.

When an individual labours under the delusion that he is the victim of a conspiracy, or of the machinations of one or more secret enemies, or that he is under the influence of witchcraft, he is decidedly dangerous, and ought not to be at large for an hour. The same may be said respecting those whose malady is manifested by unfounded suspicion of the conjugal fidelity of their wedded partners. No matter how rational the individuals now alluded to may be on all other subjects, no matter how carefully or acutely they may transact business, they are dangerous if at large, and any violence committed by them should be visited on those who have neglected to secure the public against their actions.

All who believe themselves to be under supernatural influences, are dangerous, to whatever source that influence may be ascribed by them. Sometimes the patient believes that he hears a voice or voices commanding him to do a certain thing, or to refrain from doing another. He may refer this to the devil, to a departed spirit, to an angel, to the Holy Ghost, to Jesus Christ, or to God himself. The task may be most repugnant to his feelings, he may struggle against it for a time, but he will execute it at last. At other times, instead of the mandate being communicated by a voice or voices, it is given internally, *borne on their minds or spirits*, as they sometimes express themselves. The result will be the same. The individual will either at once comply with the order thus given him, or after long doubt and struggle will execute it in desperation, whatever it may be. No one can predict or even guess at what the unfortunate individual may conceive himself to be thus called on to perform. It may be to fast for forty days—to crucify himself—to offer up his own life or that of his children, as a sacrifice to God,—to murder some one whom he believes to be an enemy to God,—to burn a cathedral or public library for the purpose, as he supposes, of advancing true religion, or doing God a service,—to shoot a judge by way of promoting justice,—to secure liberty by assassinating a sovereign or his ministers,—to punish avarice by burning the stacks of a farmer.—to kill young children for the purpose of accomplishing the number of the elect, or of saving them from sin and misery—or it may be simply to deliver foolish messages—write absurd letters—publish nonsensical books, —utter prophesies in the streets, churches, or public assemblies,—or perhaps only to deliver messages to individuals. Even in the last cases there is danger, because the messages not being attended to, and the messenger perhaps being exposed to ridicule, or rudely repulsed, strong measures are had recourse to, which end in positive violence. All that we have now stated has actually occurred, and did space permit, we might give an authentic illustration of each. As it is, we shall give one which came under our own notice many years ago.

A gentleman, highly educated and of excellent talents, who had lived in gay society, from circumstances which it is unnecessary to mention here, became depressed, as any situated as he was would have been. Though not vicious, he had paid little attention to religion; but the unlooked for calamity which befel him, led him to reflect seriously on the subject. His constitution had been very good, but disappointment and anxiety impaired his health. In these circumstances, he unfortunately came in contact with some well-meaning but injudicious friends, who thought this a good opportunity of impressing strongly upon him their peculiar theological views, the belief in which they deemed essential to salvation. These were of a gloomy nature; and the consequence was, that his depression increased, while his bodily health was more and more impaired. He became very religious, and at the same time neglected temporal affairs, which required his particular attention, saying that he had lived too long already without God, and that he was prepared now to make any sacrifice to show his faith in him. One morning he deliberately cut his throat, and nearly perished. While recovering, it was discovered, that, to use his own expression, *it was borne on his mind, that, to prove his faith, he must offer up as a sacrifice to God what was most precious to him at the time.* He hesitated for a while between his only child, an infant, his wife, and himself; and at last came to the conclusion, that his own life would be the best sacrifice. Accordingly, after praying to God, he cut his throat. This patient recovered, transacted business of a very intricate nature, and occasionally wrote for the press. To his very intimate friends, who belonged to a fervent religious sect, he occasionally spoke of his attempted suicide with horror, attributing it, however, to the machinations of the devil. His religious fervour increased, and he retired to the country, to devote himself to his studies, which he confined principally to theology and church history; his lighter reading being the biography of eminent Christians and books of devotion. He was very attentive to the poor in his neighbourhood, and most anxious to make converts to his particular views. At last he became enthusiastic in his work, denying himself sleep, showing himself impatient of the least contradiction, insisting on praying at unseasonable times, &c. His relations were informed of this; but, as he was not depressed as he had formerly been, and as his letters and conversation with some friends who went to see him were perfectly rational, they gave themselves no concern about him.—Early one Sunday morning, having read the passage, "*Go out into the highways and hedges, and compel them to come in, that my house may be filled,*" he came down to breakfast, and told those whom he met that *it was borne on his mind*, that he was specially sent to command all those who did not go to church forthwith to do so, and, in case they refused, *to compel them to come in.* He did not do much that day, having met only a few boys, whom, partly by persuasion, partly by promises, and partly by threats, he induced to follow him to divine worship. He was, however, very much elated with his fancied success, and repeatedly boasted of it during the week. Next Sunday, he met with some resistance; but, being a strong and powerful man, he beat two or three men severely, and absolutely took one as a prisoner with him to church. He was very proud of this victory, notwithstanding that he was bound over to keep the peace. In two or three days, however, having heard that a strong man had said, that he wished the patient had met him instead of the others, he walked two miles to see him, and, after an argument which did not convince his opponent, he struck him a severe blow. A fight ensued; he was victorious, and nearly killed his antagonist. That night he did not sleep, but prayed incessantly. Next day he was confined, and in a fortnight thereafter was quiet, and so far free from delusion that he declared his last violence to have proceeded from his having been tempted and deluded by the devil. He had, however, several relapses, and was two years before he could with safety be trusted at large.

Delusions as to rank, consequence, property, &c., very often render those laboring under them dangerous to society. In almost every case, such patients are troublesome to everyone to whom they can obtain access, and even the most harmless of them are apt to act in such a way as to produce a breach of the peace. The same may be said respecting imaginary attachments, which, though at first merely ridiculous in their manifestation, become very annoying to individuals, and not unfrequently lead to attempts at murder or other serious injury. We know several cases in which both steel and poison were had recourse to, and one or two in which fire-arms were used.—Such patients should be most strictly watched, and this can hardly be done unless they be placed in an establishment devoted to such cases.

We can only barely mention one or two other forms, such as moral insanity, in which the patient exhibits so little of the moral reason, that he may be said not to know right from wrong;—impulsive insanity, in which, though he may be able to distinguish right from wrong in the abstract, he is irresistibly led to set fire to houses, barns, haystacks, clothes, furniture; to destroy glass, works of art, &c.; to maim, torture, or destroy cattle or human beings.

There are other cases of insanity, in which it is absolutely necessary, for the protection of society, that the patients should be deprived of their liberty; but, as these will be alluded to under the next two heads, we pass them over here.

2d. *The protection of the patient.* Even those patients who are dangerous to others, require themselves to be protected. In the prosecution of their purposes, they overlook dangers and difficulties, and thus are exposed to risks of injury, which a sane man would either provide against or avoid. In this point of view, therefore, they ought to be secluded. Suicidal patients, idiots, imbeciles, and ecstatics, who, from their state, are liable, not only to accidents, but to wilfully inflicted injuries, will at once be admitted to stand in need of strict surveillance. There are other classes of the insane, who stand no less in need of the protection which a well regulated asylum or hospital affords, and which nowhere else can be so well secured for them, be the patients peers or paupers. These are so well described by Dr. Conolly, in his able 'Remonstrance,' that we cannot do better than quote his words:

> "With whatever derision or indignation the assertion may occasionally be received in courts of law, and by those unaccustomed to reflect upon the singular and innumerable varieties of human character, there are men and women so limited in moral perceptions, that although not violent, nor cherishing particular delusions, ideas of right and wrong have no existence in their minds. There are others who knowing right from wrong, are actuated by sudden and overpowering impulses to crime. There is a well-known form of insanity, acknowledged by all writers, called

pyromania, in which the patients obey an unmeaning impulse to set fire to hayricks, or to houses, or other property, often with no personal danger to themselves or others. There are also insane persons, to whom want and privation are unknown, and yet whose propensity it is to steal; others tear and destroy clothes and furniture, or wantonly injure objects of art; others part with valuable articles for trifling compensation, or give away sums of money which they cannot afford to lose. There are perversions of the moral feelings and passions more revolting, and often, perhaps always, associated with unsound mind.* People of this kind may not endanger their lives, or those of others, but their being at large is inconsistent with the comfort of society and *their own welfare;* and it is imperatively necessary that they should be kept and watched, either in an asylum, or in a private residence regulated like an asylum.

"There are numerous young persons whose moral character appears for a time so perverted that their education is wholly interrupted, and they cannot be at large with safety to their own character; young men, whose entire idleness, whose grossness of habits, immoderate love of drink, disregard of honesty, or general irregularity of conduct, bring disgrace and wretchedness on their relatives; and whose unsound state of mind, unless met by prompt and proper treatment, precedes the utter subversion of reason; young women of ungovernable temper, subject, in fact to paroxysm of real insanity, and at other times, sullen, wayward, malicious, defying all domestic control; or who want that restraint over the passions, without which the female character is lost. For these also, such protection, seclusion, and order, and systematic treatment, as can only be afforded in an asylum, are often indispensable. Without early attention and more careful superintendence than can be exercised at home, or in any private family, many of these cases go on to absolute insanity; and at length they become dangerous. By early care this terrible end is generally averted, and such young persons are often restored to their families and to society. If we wait to interfere with them, until they have become dangerous, the consequences may be, some outbreak of frightful violence, even murder or suicide. Seclusion and systematic superintendence are strictly parts of the medical treatment in such cases; and to censure those who resort to it is as utterly unwise as it would be to reprove a physician for checking an inflammation by bleeding and blistering, before life was endangered, or a surgeon for preventing the progress of a disease of a joint before incurable disorganization rendered amputation necessary.

"There are men of rank, of minds so ill regulated and unsound, that if uncontrolled, they would be ever the associates of the lowest profligates, and frequent the vilest abodes of vice without shame; and women of wealth and station who will drink to excess, and expose themselves to every possible degradation. No one who is so unfortunate as to have in his own family, or among his acquaintance, any person manifesting any of the forms of perverted character spoken of, will for a moment withhold assent from the opinion that *all such persons require to be treated as insane. The truth is, they are already of unsound mind, and without timely treatment and control they will become ungovernably mad, and remain so for life.*" (pp. 8-11.)

"Among women of various degrees of understanding, there is no single cause of insanity more frequent than fanaticism. At once gloomy and presumptuous, they are easily induced to believe that God speaks to them more directly than to others; they soon learn to despise their parents; they denounce their relatives and friends, write foolish or abusive letters to persons in their neighbourhood; interfere in every family, and put their whole trust only in the vilest flatterers of their folly, to whom their property is willingly confided. To withhold superintendence and watching from such women would leave them an unprotected prey to hypocrisy and dishonesty. There are gentle spirits, whose gloomy religious views, if fostered by the continued society of those among whom they originated, lead, by certain consequence, to self-destruction. If no one heeded their incipient malady before they actually became dangerous, it would often be too late to avert the danger." (p. 15.)

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* We presume that, by *mind*, Dr. Conolly means here *intellect*. We have no hesitation in saying, that, whatever be the state of the *intellect* in the cases referred to, the patient labours under moral insanity, and therefore he is of unsound *mind*. In many, if not in most of such cases, however, the intellect will be found to be more or less affected.

It is well known that some women when they reach the age of from 40 to 50, and some men, that of from 60 to 65 years, exhibit propensities and act in a manner altogether foreign in their natural characters. Their friends and acquaintance are shocked with their words and actions, and public decency is not unfrequently violated. Though the intellect be little if at all affected at the beginning, it very soon becomes impaired; and if the disease be not checked, the patient, though perhaps quiet at first, exhibits irritability and bursts of violence. The causes of this form of disease are physical, and if the malady be promptly and judiciously treated, the patient will in many cases recover. If it be allowed to go on unchecked, the course of conduct which it impels the patient to pursue rapidly increases its severity, and it very soon becomes incurable. Now laying aside the fact that such patients are very often dangerous to others, surely it would be barbarous to leave them at liberty to their own destruction. Unfortunately such cases are looked upon as unaccountable instances of folly or depravity, and not of disease, and too often become incurable before the true state of matters is suspected.

It will scarcely be denied that for protection it is necessary to curtail the liberty of a patient who either believes himself to be so directly and so securely the favorite of heaven, that the physical laws of the universe will be on all occasions suspended to save him from the consequences, whenever he thinks proper to disregard or to violate them; or who, like Miss Nottidge, should believe that he could not die, but that, when the period for leaving this world should arrive, he would be at once translated to Heaven. Individuals acting under such delusions may step out of a second floor window, or over the side of a ship, expecting to wing their way to the stars, or at least be miraculously preserved. Incessant vigilance is necessary to protect the patient, and this can be properly secured only in an asylum, or in a house regulated like an asylum.

3d. *The cure or alleviation of the disease, or, failing both, the retarding of its progress.*—There is no fact better ascertained in medicine, than that the curability of insanity is in an inverse ratio to the duration of the disease. The proportion of cures effected has been variously stated, as must be the case when circumstances differ so widely as they do in different asylums. Assume, however, that the cases are such as are usually denominated curable, that is, not complicated with organic disease of the brain, epilepsy, palsy, &c., the per-centage of cures may be thus stated in reference to the duration of the disease before treatment.

Cases of 1 month's duration	83
Cases above 1 month and under 3 months .	78
" 3 months " 6 " . .	59
" 6 " " 12 " . .	35
" 12 " " 18 " . .	18
" 18 " " 24 " . .	10
" 2 years	4

But this is not all. Not only the chance of cure is diminished by delay in taking the necessary measures, but even though the patient should be cured, he is subjected to longer treatment, and consequently to longer privation of free action. For instance, a case properly and promptly attended to within a month of its commencement, may be cured within three months; but if neglected, or what almost amounts to the same thing, imperfectly treated, for three months, will in all probability require a year to conduct it to a favorable termination. It may not be unnecessary to remark, that there is scarcely a single case, if indeed a single case can be found, which has been cured when left to run its course either unchecked or partially checked by irregular treatment. Why then is so much valuable time lost? Why is the recovery of the patient perilled by delay, and himself subjected in the most favorable circumstances to longer seclusion, than, if he had been properly treated, would have been necessary? Simply because the patient, though acknowledged to be *queer*, *odd*, *not himself*, *strange*, *a little touched*, *cracked*, *wrong in the head*, *peculiar*, or perhaps insane, is supposed not to be bad enough to require seclusion, and the relatives put off from day to day taking proper measures for the treatment of the case, in the hope that he will get better. The hope is vain. The case becomes worse, and when the proper course is resolved on and adopted, it is not unfrequently too late. Every man of extensive practice in insanity has complained of the difficulty of persuading relatives and friends to place a patient under restriction; and the reports of asylums, as well as most works on insanity, most particularly refer to this, and lament the consequences. Nor is this state of matters likely to be remedied, so long as a judge is to be found on the bench shutting his eyes to every consideration but one, and declaring that the safety of the public is the only thing which justifies the confinement of a person of unsound mind—so long as juries can be confused by pleadings, and led away by the inflated paragraphs on the violaton of the liberty of the subject, and appeals to excited feelings, with which, from time to time, they are roused by the press.

In the treatment of every case of insanity, the first thing necessary is, to subject the patient to control, more or less strict, according to circumstances. Without this, all other treatment is in vain, and the only question is, whether this control can be as fully and beneficially exercised at home or in a private house, as in an hospital, asylum, or other establishment set apart for the treatment of such cases. A great deal of false humanity has been exhibited by non-professional men on the subject of control. To say nothing of the sentimentalism of poets and novelists, from whom most men derive their notions of insanity, we have the most hideous revelations of the barbarous treatment of the insane in former times, paraded from time to time in periodical and other works, though such atrocities are no longer perpetrated, or, if perpetrated, are speedily detected and repressed; and, as usual in such cases, the idea of an hospital or asylum for the insane becomes associated, in the public mind, with irksome and gloomy confinement, with harsh or cruel usage; in fact, becomes a fixed idea, which can be with difficulty eradicated from the educated mind. As well might the antiquated and torturing processes of surgery be adduced as proof of the barbarity of all surgical treatment. Again, it is completely overlooked, that, in the treatment of other diseases besides insanity, the personal liberty of the patient is interfered with. If a man in fever remains in bed, good and well; but, should he become delirious and insist on leaving his bed, he will be put back to it, and held there; and, should he still persist, he will be secured in a strait-jacket, or by rougher and more effectual means. In surgical cases, too, does the surgeon ever hesitate to interfere with the liberty of his patient, if delirium or somnambulism interfere with the treatment of a fracture or a wound? Why, then, should there be any hesitation in restraining the liberty of a patient of unsound mind, seeing that, without this, his case cannot be properly treated? Neither diet, regimen, nor any part of the treatment can be systematically carried on, unless the invalid be under control; nor can he be prevented from following those courses which will aggravate his disease. The truth of this has been perfectly established, and will at once be obvious to any one who will calmly and dispassionately consider the subject.

But, not only is control necessary to secure the success of the treatment employed, but it of itself constitues one of the most important remedial means to which recourse can be had. Those unaccustomed to mix with the insane, are apt to think that they may be reasoned out of their delusions, and that remonstrance will prevent their absurd conduct. This is a great mistake. We are aware that isolated instances may be adduced, in which such means have proved successful. Such cases, however, are not to be taken into account. We can confidently appeal to the experience of all physicians, who have devoted themselves to the treatment of insanity, in corroboration of the statement which we now make,—that argument and remonstrance are useless in respect to delusions and propensities, and in many cases prove prejudicial, unless the patient be under control, and so far recovered, that he may be looked upon as in a state of incipient convalescence. Even when there is no hope of the case being improved, it is necessary to keep the patient under control, for the purpose of preventing his disease from becoming worse, as it would inevitably do if he was left to himself; and this, perhaps, will be all the treatment required. This being premised, the question comes to be, in what manner and to what extent ought this control or interference with personal liberty to be carried out. There are only four ways of proceeding. The patient may be allowed to move about or be sent to travel, under the charge of some one capable of controlling him; he may be kept under surveillance at home; he may be placed in a private asylum; or he may be sent to a public hospital. It is manifest, that, whatever plan be adopted, the liberty of the individual must be interfered with to a certain extent.

Modified surveillance, the patient being left so far at liberty, but subject to the control of another.—There are very few cases in which this plan can be adopted with advantage, or even with safety. We shall briefly state them. When the mind has been impaired, or worn out by long-continued exertion, by anxiety, or suffering, so that the patient appears to labour under a form of acute dementia, and is perhaps conscious of his state, being at the same time quiet, inoffensive, not suicidal, free from religious excitement or depression, and willing to be guided by his friends, it would not only be harsh, but highly injudicious, to send him to an asylum public or private, inasmuch as it might aggravate the disease and perhaps render it incurable; while, on the contrary, by removing him from the scene of his labours, rest of mind, a residence in the country under the care of a relative, or one in whom he places confidence, attention to health, and occupation sufficient to interest without fatiguing his bodily or mental powers, he has the best chance of recovery. Travelling, which is often suggested and recommended in such cases, is far from being useful at first, though when the patient has recovered, it is beneficial in establishing the cure, and is the best mode of introducing him to his former pursuits. In such cases, if the services of a medical man, who knows the subject well, can be procured, he will be found the best guide and companion for the patient.

During the incubation, too, of some forms of insanity, the plan of proceeding just now mentioned, combined with proper medical treatment, will, in many cases, ward off the attack.

In that form of insanity called *senile dementia,* which has ranked among its victims men whose genius and learning have been the admiration of their age, though, as frequently happens, the attack should be ushered in by irritability, excitement, hurried thoughts, or depression, it will in most cases be quite sufficient to watch the patient carefully, giving him at the same time the advantage of country air, or travelling if he can bear it, moderate exercise, and a tonic regimen. Some of these patients have a tendency to commit suicide; but their plans for effecting their object are generally so ill-conceived and so ill-executed, that they may be easily frustrated by ordinary intelligence and careful watching. Cases, however do occur in which greater restraint is necessary, even to the extent of seclusion or confinement; as for instance, when the language and actions of the patient are grossly indecent, when he is highly destructive, &c. Such cases of senile dementia are few; though in dementia, or fatuity consequent on insanity, which has sometimes been improperly called senile dementia, because the patient happened to be old, this state is not unfrequently met with, especially when the patient had not been properly treated before.

In old cases of insanity, when the patient has settled down into a quiet, harmless state of imbecility, without passion and without impulse, it will be unnecessary to retain him in an asylum, provided he have a comfort, able home, and kind friends to attend to him and protect him from evil.

Congenital idiots or imbeciles, or those who in early life have fallen into similar states, may in certain circumstances go on well enough under this modified form of control. It is to be regretted, however, that except one institution in London,* there are no means in this country of educating and taking care of patients of this class, apart from their friends, who are not the best parties to whom they can be intrusted, since either over-indulgence, or harshness arising from impatience, will, if it do nor make them worse, at least prevent their improvement. Asylums receiving all classes of patients are not exactly suited to the patients now spoken of, especially when they belong to the better ranks of society, unless from passion and impulse they can no longer be kept at home. Those of the pauper class ought, at present, to be transferred to asylums instead of being retained in workhouses, boarded with the needy, or left in charge of their friends, who, besides being incompetent for the task, have neither time nor means at their disposal for performing it. In an asylum, such unfortunate beings will at least be trained to habits of regularity and order, and be protected against insult and harsh treatment. Under any other system of control at present practicable, they will be subject to both, and daily become worse.

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* It is to be regretted that every district has not an institution for the training and maintenance of idiots. We have much to say on this, and hope to have an opportunity of calling the attention of the reader to the subject in all its bearings. Meantime, we trust that the sole institution devoted to the purpose, of which this country can boast, will be energetically supported, and that the means will be furnished of carrying out the views of its benevolent projectors to the very utmost, as upon the success of this will depend future efforts for the purpose in other districts.

We have now mentioned all the cases in which mere surveillance can be safely employed. They are few indeed. One general feature is common to them all, the absence of violent emotions and impulses, and the possibility of conducting the treatment, moral and medical, suitable to the case, without farther control. We also take for granted that the patient has kind and affectionate friends who will patiently and continuously exert themselves for his welfare, and that his means are sufficient to secure the comfort and treatment which he requires: under no other circumstances can this plan be adopted with safety. Should this not be the case, recourse must be had to one or other of the modes of restraint next to be adverted to.

Confinement at home or in a private house. It may be that, from peculiar circumstances, in some of the cases alluded to in the last paragraphs, the control therein mentioned may be insufficient; or that, though sufficient, it may not be possible to exercise it. Recourse may then be had to this plan of proceeding, which presupposes a command of sufficient pecuniary means, good medical advice, and proper attendants, whom money will in general, though not always, procure. We shall first point out those cases in which restraint at home is desirable for the sake of the patient; and next, those in which it can be had recourse to with safety to others, though with disadvantage to the patient.

When an acute attack of insanity occurs in a young and vigorous person, unexpectedly and without any appreciable cause; or in any case in consequence of sudden mental emotion; or from sudden suppression of the catamenia; or in childbed, constituting puerperal insanity; or from suckling protracted either beyond the naturul term, or, what is the same thing, beyond the strength of the patient; or when it supervenes on an apoplectic or paralytic seizure; the patient ought not to be immediately removed from home. In some of these cases immediate removal would be injurious, if not fatal, and in all it would be harsh and unnecessary, inasmuch as by judicious treatment, the sufferer may recover at home, and the feelings of all be spared. To the experienced physician we need not point out the danger of mistaking delirium, arising from meningeal inflammation, or that which occasionally ushers in continued fever, and is a most unfavorable symptom, for insanity. His knowledge will guard him against committing this error. The junior practitioner, however, will not be the worse of the warning, inasmuch as we have met with several cases in which, either from carelessness or ignorance, this blunder was made. By delaying to do that which is unnecessary, the most careless and the least experienced will be prevented from injuring the patient, and damaging his own reputation. The case, however, proving to be one of insanity, should little or no improvement take place in the patient, removal will become indispensable, unless, which is far from advisable, the house be converted into an asylum, and be regulated as such. In many cases, too, this will not be sufficient. A few weeks will in every instance enable not only the medical man but the friends themselves, if capable of reflection, to decide; and all hesitation and delay thereafter will be prejudicial to the patient, and therefore highly culpable. Even from the beginning of the attack, and under the most favorable circumstances, the house, or at least that part of it apportioned to the patient, must, for the time, be converted so far into an asylum; and in most cases it will be necessary to admit, with the exception of the medical man, none but strangers to attend on the sufferer, and rigorously to exclude not only relatives, but all with whom he or she may be acquainted. To all intents and purposes, therefore, this is confinement—interference with the liberty of the subject, be it remarked, of the most decided nature—but perfectly justifiable, inasmuch as without it the patient could not be properly treated. We have said that it is far from advisable to convert the patient's home into an asylum, for the prolonged treatment of the cases which we have mentioned; and this will at once be obvious, when it is considered that the patient, in almost every case, knows that it is in his home that he is confined, and becomes naturally irritated at strangers taking the command of it; and that calling in vain for his friends and servants, his malady is likely to be increased, either by the chagrin which he feels for the supposed neglect, or by the indignation excited by their apparent insolent disobedience. Add to this, that even if so far recovered as to be aware, or to have some glimmering suspicion, that he has been ill, the appearance of the room, the bed, the furniture, the prospect from his windows, the very garden in which he may walk, being all associated in his mind with the sufferings which he may have undergone, or with the delusions under which he may have laboured, will tend to produce a relapse which may frustrate all hopes of his recovery. On the contrary, removal from home at once obviates all these disadvantages, and has this also in its favour, that it promotes recovery by exciting a diversion in the patient's thoughts, or by throwing them into a new channel, which will prevent him from dwelling on his delusions, cause him to doubt their truth, or to give him the means of correcting them. These objections apply when the residence is in the country,or sufficiently detached from other habitations. They are infinitely more cogent in town. Besides, in a town, the patient cannot be kept free of those external circumstances which ought to be prevented from influencing him, such as the movements of neighbours, noise of vehicles, musical instruments, &c.; while, when exercise or exposure to the air becomes advisable, he can enjoy neither, from want of the means, or from his being exposed, even should there be ample space, to the gaze and remarks of others. Families are naturally very anxious to conceal the insanity of any of their members; but we know of no more effectual way of extensively promulgating that which they wish to keep secret, than to retain the patient at home, after the case appears to be decided, and he can with safety be removed. All considerations, therefore, are in favour of his removal;—the advantage of the patient—the comfort of his relatives—and the concealment of his malady, so as hereafter to affect neither his own prospects nor those of his family.

Removal, therefore, having become not only advisable, but perhaps absolutely necessary, there is a prejudice among almost all ranks of society, which makes them believe that it should be to a private house, and not to an asylum or public hospital; and it may be well to consider, whether in this way the welfare of the patient can be fully secured. The supposed advantages are: greater attention on the part of the medical man; milder treatment; greater comfort to the patient; the concealment of the malady; and the saving the patient, when he recovers, from the discovery that he has been an inmate of an asylum, which it is feared might produce a relapse; or, at all events, the obviating the ill-will which he might afterwards bear to those who had consented to the measure, and the feelings of humiliation and depression, which would be likely ever afterwards to harass him.—Now, these are illusory. In the first place, it is utterly impossible that the patient can receive, from any ordinary medical attendant, more attention than he would in a properly regulated establishment for the insane; and, even if he did, it would not be advantageous to him. One would think that the mere presence of a medical man was supposed to act as a charm on the malady; or that constant attendance, or interviews crowded one on another, would act beneficially. Nothing can be more absurd. On the contrary, it is necessary that some interval should elapse between the visits of the physicians, in order that they may produce any effect. Very frequently, a few short observations will produce more effect than a prolonged conversation; and, besides, it is necessary that the patient should be left to reflect, if he be capable of thinking at all. If he be furiously maniacal, or incapable of thinking, the constant attendance or the incessant visits of the medical man will be utterly useless. So far, therefore, as the supposed advantage in respect to medical attendance is concerned, it may be at once laid aside as of no value. The milder treatment and greater comfort expected to result from the plan now under consideration, are equally fallacious. When a patient is subjected to confinement in a house, *that confinement must be more rigorous than if it took place in an asylum.* Personal restraint, which we believe to be quite unnecessary in a properly organized and appointed asylum or hospital, will, in many cases, be had recourse to, not because those in attendance believe it to be imperative or advantageous, so far as the treatment of the case is concerned, but because, situated as they are, they must employ it. We believe that the most ardent opponents of bodily restraint, among whom we number ourselves, will not hesitate to admit, that, in private practice, it becomes occasionally, to a certain extent, necessary; though, if the same cases were to be subjected to the discipline of a well-organized asylum, it might not only be dispensed with, but would, if used, be attended with disadvantage. Again, the attendant or attendants in a private house must, as a consequence, be left considerably to their own discretion. There is none of that discipline to keep them to their duty, and to prevent them either from falling short of or exceeding its performance, which is to be found in properly organized establishments for the insane. In proof of this, we may appeal to the heads of asylums, who may have been in the practice of sending out attendants to wait on the insane. We believe that they will universally admit, that, however punctual and trustworthy they may have been in an asylum, they, in most cases, if left for a considerable time in a private charge, deteriorate, and either usurp authority to which they are not entitled, or become careless of their charge. As well might we expect a sentinel, detached from a regiment, to observe all the punctualities of military discipline, if separated for six months or a year from the corps to which he belongs, and, when freed from the daily drill and inspection, to keep up his character as a steady, well-disciplined soldier; as expect that an attendant, dispatched from an asylum, will act in all respects the same as if he was on his ordinary routine duty. This being the case, there will be either neglect or harshness, or, in all probability, both combined, on the part of the attendants. In regard to apartments and diet, we have no hesitation in saying, that these can be secured more favorably, as respects the patient, in establishments devoted to the care of the insane, than at home and in a private house. When the patient, too, is kept by himself, he feels that the restrictions under which he is placed, and the course which he is obliged to pursue, are personally harsh, and he is inclined to rebel against them, because they are directed to him alone. On the contrary, in an asylum, he readily falls into drill. He sees others obeying certain regulations; these are not directed against himself personally; he may dislike them, but they are the common lot; he submits and feels himself not a whit aggrieved. He is placed in a large machine, and must turn with it. In all properly regulated asylums, too, the patient will be treated with firm, uniform kindness; and the comforts suitable to his condition will be supplied. So far, then, as medical attendance, general treatment, and comfort are concerned, we are of opinion, that these can be better secured in an asylum, than in any private house, however well organized. The supposed advantage of secrecy, so as to spare the feelings of the patient, may be easily disposed of. In the first place, by the present law, no one can be confined in any house, when the proprietor receives any compensation for his maintenance, without his being duly reported to the secretary of the Commissioners, when his name will be registered. In the case of a person remaining in the custody of his family, this does not seem to be required. The patient, therefore, except in very few cases, is liable to all the regulations which affect those placed in asylums, except that his name is placed in a separate register, and that he is visited by the private committee of the Commissioners. But what advantage is this? None that we can conceive. The Commissioners, and all acting under them, are bound by an oath of secrecy; and the governors of asylums are too honorable, and know their position too well, to betray any trust reposed in them. An ordinary medical practitioner is as likely to betray the secrets intrusted to him, as the medical officers of an asylum. Respecting private custody. where no fee or reward is given for the care and maintenance of the patient, it may be observed, that, whatever precautions be taken, it is impossible, in this country, to prevent the fact from being discovered, that an insane individual is living in a certain house. It is impossible to shut the mouths of servants, or keep them always on their guard against the curiosity of others. The very fact, that the affair is new to them, renders it wonderful in their eyes. The servants of an asylum, on the other hand, take the matter as one of ordinary occurrence, and are less tempted to talk about it. Besides, their opportunities are fewer; they are more on their guard against impertinent or sly inquiries, and they risk their all by any imprudent divulging of secrets intrusted to them. Again, in regard to the feelings of the patient, we have to observe, that the experience of many years has shown us, that the insane, after recovery, do not, with few exceptions, entertain any hostility to those in charge of asylums in which they may have been placed, or to those who have been their immediate attendants there, provided they have been properly treated;—that they do not blame their friends any more than they would have done if they had been kept at home, but, on the contrary, often blame them for not having sooner sent them to an asylum, where they would have sooner recovered;—and that the chagrin and depression are infinitely less when they have been sent among total strangers and to a strange locality, than when they have been kept among their friends, or on their own property, or in a locality where they were known. Besides, when the patient recovers, this feeling very soon wears off, if his introduction to society be gradual and cautiously managed; and it will not again recur, unless some injudicious and uncalled for reference to the past reproduce it.

On the whole, therefore, we are of opinion, that, except in those cases already pointed out, in which a patient may be safely trusted to what we have called modified control, and those other cases mentioned at the commencement of this section, it is better for the patient, that he should be placed in an establishment duly organized and set apart for the treatment of the insane. This brings us to consider the merits of private and public asylums.

Private and public asylums. To those who have taken the trouble of visiting these institutions in this country, it will be unnecessary to point out the advantages which they afford over confinement in a private house. The great distinctions between public and private asylums are, that the former are under the control of public bodies, and the latter under that of private individuals, who have a pecuniary interest in their success;—that the number of patients in the former is always great, and their rank in society various, while, in the latter, the number is limited, and the cases more select. We do not advert here to private institutions for the reception of pauper lunatics, which are now diminishing in number, and will very soon be altogether abolished. Looking at the question in an abstract point of view, we think that there can be little doubt, that it would be desirable that all persons of unsound mind, who required confinement, should be placed in public asylums,—that is, asylums, private so far as the patient is concerned, but public in respect to their management. We are aware, however, that this is not likely to be effected; and that, where there are ample means, private asylums will be preferred by the friends of the patient. We do not think it advisable that the same asylums should contain criminal, pauper, and educated patients. Criminal lunatics should be kept by themselves, and not suffered, on any pretext, to mingle with even the paupers. Pauper lunatics, again, cannot be so advantageously treated in asylums, where patients of the better ranks are admitted, as they would be in hospitals set apart for themselves. In a pauper asylum, there is no need of expensive architecture; and, provided the buildings have a cheerful appearance, and be comfortable and well adapted for their objects within, the plainest style will be all that is necessary. Thus, at the commencement, a considerable sum may be saved, which would be applicable to giving a larger space of ground for the employment of the patients, which, in many cases, is too limited. Again, the diet and clothing, as well as the occupations of the patients, can be better and more economically managed when the patients are all of one rank; and the attention of the officers is not liable to be distracted, as it is when a few better-class invalids are received with a mass of paupers. We think, too, that the classification will be more attended to, and better carried out. If the prejudice against it could be overcome, and public asylums for the educated classes instituted, it would not only be advantageous to the patients, but would give to the public a feeling of security that no one was improperly confined. Perhaps a step in the right direction might be taken, in furnishing an asylum to a class of patients who are at present in general much worse off than the paupers, such as governesses, half-pay officers, professional men, and their families, of limited incomes, who cannot afford the rate of board required in first-class private asylums. Such an establishment, once set a-going, ought not only to maintain itself, but to leave a small balance annually to accumulate, for the purpose of meeting any extraordinary outlay. One advantage possessed by institutions set apart for the treatment of the insane is, that the means are more ample and better adapted for effecting this object, than they can be in a private house, whatever be the expense incurred. In a private house, the patient is in a great measure cut off from society; but, in a well-regulated asylum, he will have society suited to his state, and besides be subjected to those many, apparently trifling, or perhaps unseen and unfelt, influences, which, nevertheless, constitute a most important part of the treatment. The change, too, is more complete, and the invalid is saved from those evils which so frequently arise from the well-meant but injudicious interference of friends. We conclude this by quoting the remarks of Dr. Conolly:

> "No one is more suspicious of private asylums than myself. Few physicians have so often condemned them so freely. But I trust it may be said, with truth, that all well-conducted asylums have now become places of protection; abounding in the means of diverting the thoughts, of calming morbid excitement, of soothing the depressed, of rousing the apathetic, and of restraining the lower propensities of the insane, and restoring the control of reason. The most powerful of all restraints is found to be kindness; and it would be well for mankind if, in their intercourse with one another without the walls of asylums, they imitated the forbearance usually exercised to those within them. The patient who was wasting his money when at large, or forming a degrading connexion, or lost in drunkenness, or wandering about, dirty and ragged, followed by the idle and mocking crowd, or vexing the quiet of many houses by night and day, and breaking the heart of sorrowing relatives, becomes, after a short residence in a good asylum, composed in manner, decent in conduct, orderly in dress; he is saved from ruin as to his property, or from impoverishing those related to him; and enjoys a degree of liberty and happiness which no other residence could afford him." (p. 12.)

From what we have said, it will appear that every individual of unsound mind requires to be controlled; that the degree of control necessary depends on the form which the disease assumes, and its intensity; that, in most cases, confinement is absolutely necessary; and that, with very few exceptions, patients will be much better treated in every respect in an asylum.

The case of Miss Nottidge did not form one of the exceptions. It was absolutely necessary that her personal liberty should be restrained, on all the grounds which we have mentioned as justifying confinement. In the first place, her mind was so feeble, she was so much under the influence and dictation of her spiritual adviser, that she would have done anything whatever which he desired; and her delusions being of such a nature, that, despite her naturally amiable character, she might have been led, under their influence, to act injuriously to others, we do not think it would have been safe for the community to have left her at large. In the second place, from the nature of her delusions, without the slightest intention of injuring herself, she might have met with a serious injury, and probably with death, by stepping out of a window, and disregarding all ordinary precautions against accidents. Besides, her person required protection, considering the mixture of erotic and religious impulse which evidently existed, to say nothing of the saving of her property. In the third place, curtailment of her liberty was absolutely necessary for her treatment, as she would not submit to any control at home, but pertinaciously insisted in returning to those scenes and influences which had produced her disease, and were the best calculated to aggravate it. On the whole, therefore, we are of opinion, that the confinement of Miss Nottidge was justifiable, and that her relations would have been to blame if they had not taken the steps which they did. We again quote Dr. Conolly:

> "This weak-minded lady, full of undoubtedly insane delusions, and whose duty to her only sorrowing parent had merged into the absolute worship of a mere man; and who defying the restraints of home, had left her mother's roof, and had been concealed in that Abode of Love, or elsewhere living under the influence of its founders—at one time, for instance, represented to her sorrowing mother as 'living at Weymouth in the greatest sin and iniquity;'—was, when found and rescued from all the risk of a life so represented, placed in an asylum for persons of her own rank in life, and well known as an establishment of the highest character, where a near relative had been placed before, with the result of recovery, and the proprietors of which are known to be distinguished for liberality and kindness in all these arrangements, and for openness and honour in all these transactions. The choice of the asylum, to all who know anything of such places, would sufficiently prove that protection and proper care were the first things desired. By remaining there, even if the feeble intellect could not have been improved, the delusions might have died away, and a sense of duty have returned; her habits would at least have been regulated, all excess avoided, all painful exposure prevented; the patient would have been screened from all possible harm, and her property from pillage. But although her demeanour continued to be that of an insane person, and her belief in Mr. Prince being the Almighty remained unshaken, and she thought herself immortal, and daily expected to be lifted up into heaven by Mr. Prince, she was unfortunately allowed to leave her safe retreat; upon which she returned to the Abode of Love, where her money was soon transferred to him whom she spiritually adored. There, in that Abode of Love, she remains; she will have more money at her disposal by and by, and the institution will not now be prevented from benefitting by it. The only fault, indeed, of which the Commissioners seem to have been guilty, was that of ordering her liberation from Dr. Stillwell's asylum; but they thought her health declining, and could not foresee or imagine all the consequences." (pp. 13, 14.)

But what said the jury? After retiring for an hour, they returned a verdict for the plaintiff, with damages to the amount of £50; at the same time stating that they begged to give their opinion that the *defendants had not been actuated by any mercenary or unworthy motives in the steps which they had taken.* The damages had been laid at £1000, but they awarded only £50, which considering the wealth and position of the parties, must be looked on merely as nominal. Had the case, as stated by Mr. Cockburn, been made out, ten times the amount of the damages claimed would scarcely have been proper compensation. The verdict does not by any means very clearly show on what account the damages were awarded. They may have been given for the abrupt removal from Agapemone; but if the subsequent proceedings were justifiable, it is not very clear to us how this step could have been found fault with. Then, again, it is stated that the defendants were actuated by no mercenary or unworthy motives; and the question naturally occurs, what other motives could have induced a brother and brother-in-law unjustly to confine a lady in an asylum for seventeen months. It may be thought that the jury meant it to be inferred, that the offence of the defendants was merely an error of judgment. But this supposed error of judgment was not confined to them; it was shared in by all the medical men who were consulted on, or acquainted with, the case, and by the Commissioners in Lunacy, appointed by law to adjudicate on such cases. The defendants had done everything in their power to come to a correct decision, and they had obeyed the law to the letter. If this is not a justification, we are at a loss to conceive what will be accounted one. We hear a great deal about the protection of the insane, but it appears to us that some protection is required for their friends. All who interfere are protected, except the latter. The medical men who grant the certificates, if they be in due form, will not be liable for any error, unless corrupt motives can be proved. The superintendent or proprietor of an asylum can plead the order and certificates in any action, as a justification for taking, confining, detaining, or retaking a patient; and the Commissioners and visitors are protected in the discharge of their duties. Now we do not see when all the provisions of the law have been complied with, and all means to ascertain the true state of the patient taken, why, with all due respect for the liberty of the subject, the proceedings should not be pleaded as a justification in any action. Let us see how the law provides against improper confinement or improper detention. There must first be an order for the reception, signed by a relative or other person authorized to act; and this order must state fully the name, age, sex, civil condition, occupation, religious persuasion, and previous place of abode of the patient, the duration and number of the attacks, the age on first attack, whether the patient be epileptic, suicidal, or dangerous, when and where previously confined, whether found lunatic by commission, and date of the commission, or, if these particulars are not set forth, the special circumstances which prevented the insertion. In the next place, the patient must be examined separately by two duly qualified medical men, who must sign separate certificates, setting forth their qualification, the form of insanity under which the patient labours, that he is a proper person to be confined, and also the facts on which the opinion is formed. To prevent any undue bias, the medical men certifying must not sign the order, must not be interested in, or attend a licensed house or hospital, in any way whatever, and must not be in partnership with each other, or with any one attending or interested in an asylum. The certificates, too, must be granted within seven clear days of the patient's reception into an asylum. When the patient is admitted, further protection against improper confinement is ensured to the patient. The medical man in charge of the asylum must examine the patient, and furnish a certificate of his state, mental and bodily; which certificate, with copies of the original certificates and order, must be returned to the Commissioners after two clear days, and within seven clear days after the patient's admission. If the medical officer of the asylum do not consider the case a fit one for reception, of course he does not admit it. Any one granting a certificate, fraudulent in any circumstance, is liable to be indicted for a misdemeanor. Now here, at the very outset, every care is taken to prevent improper confinement. To deprive an individual of liberty improperly, requires a conspiracy to be entered into by four parties, who are wholly unconnected with each other, and whose separate interests do not lead them to conspire. Three medical men must be procured, destitute of all moral principles, regardless of their professional characters and of their worldly prospects, and willing to run the risk of being indicted for a misdemeanor, and all this in the face of certain detection. We have said nothing of the person signing the order, because he may be an unprincipled relative acting from corrupt motives. Still it may be remarked that he would run no little risk in putting his scheme in practice. We may safely grant that errors of judgment may occur, and that it is barely possible that all the three medical men may fall into the same blunder. But this is so unlikely that it can hardly be conceived. The protection of the patient, however, does not stop here. The case must be returned to the Commissioners, must be entered on the books of the asylum, in a mode fixed by the act; the patient must be seen by the visitors or Commissioners, sometimes by both, and it would be necessary for the unprincipled relative to bribe the Commissioners in Lunacy to secure the detention of the unfortunate victim. Will any man in his senses say that it is possible now to confine an individual, without just cause in an asylum? Two independent medical men, unconnected with each other must be *bribed*—the medical officer of the asylum must be bribed—the Commissioners must be bribed! We ask, is this possible? Again, we repeat that *the* friends of the patients require protection. If an individual be sent to an asylum in a regular way, and all the parties we have mentioned are of opinion that he was a fit subject for confinement, we conceive that this ought to be a sufficient justification in any action. By demanding all these certificates, and by intrusting to Commissioners and visitors *certain* powers over asylums, the law has made the medical men granting the certificates, and the Commissioners and visitors deciding on the propriety of confinement, judges in such cases. The law has said,—by such a course you shall ascertain whether the patient is sane or insane, and by such a course he shall be protected against unnecessary detention. The *decision* having been given by those whom the law considers to be most competent to judge, it is hard that relatives, acting *bona fide*, should be harrassed by an action, and compelled to have the case reheard and redecided by twelve men, perhaps most incompetent to give an opinion on the subject. Let us hear no more about the danger of people being kidnapped for harmless opinions, or of the invasion of the right of private opinion in religious matters. Nobody will interfere with the mere enthusiast or fanatic. Miss Nottidge's sisters were fanatical enough, but they were not insane. The soil was prepared, but the seed was not sown.

Returning to the verdict, we may be allowed to state, that it shows that the jury had no clear conception of the case; but they had been confused by the plaintiff's council, and led away by the observations of the Lord Chief Baron, on which we must offer a few remarks.

While the case for the plaintiff was going on, the learned judge listened quietly to all the absurdities elicited from the witnesses, and the detail of the machinations of which some unfortunate ladies had been the victims. When the plaintiff's mother was called for the defence, he somewhat abruptly addressed the aged lady in these words: "Why did you not have a commission of lunacy? Why lock her up for fifteen months? *You should have had the sanction of the law for such a step.*" This implied that the friends had, in his opinion, acted contrary to law, and that they had no right to "lock her up" as he called it. His Lordship seems to have altogether forgotten, if, indeed, he ever knew, the provisions 8 and 9 Vict., c. 100; or he would have known that the proceedings in the confinement of Miss Nottidge were quite regular, and *had the sanction of law.* When an unfortunate offender violates the provisions of some statute, of the existence of which he had never heard, and pleads ignorance as a palliation, he is told with great formality and dignity, that ignorance of the law is no excuse, and that he must take the consequences? What excuse, then, shall we find for the judge? To the question, "Why did you not have a commission of lunacy?" Mr. Crowder replied for the witness, that the friends wished, if possible, to avoid making the matter public. This is a sufficient answer, though others might also be given; and, in the letter of the Commissioners to the Lord Chancellor, the matter is well stated in the following sentences:

> "The opinion attributed to the Lord Chief Baron, that a commission is necessary in all cases, in order to give the confinement the sanction of the law, appears to call for some remark. It is hardly necessary to observe, that proceedings by commission are, generally speaking, advisable only where the insanity is likely to be of a permanent character, and the property of the lunatic is of such a nature as to be likely to require them, and of an amount adequate to meet the expense, always considerable, and, when the commission is contested, frequently very large.
>
> "Wherever a reasonable hope of recovery exists, and the income of the lunatic can, in the mean time, be properly administered for his benefit, without a commission, the general practice among the friends and relatives of the insane is, to avoid resorting to proceedings which entail unnecessary cost, which, by the disclosures they occasion, are most painful to the feelings of the family, and which, by the excitement they produce, are sometimes injurious to the patient himself.
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> "It is obvious, that the finding of a jury is in no case essential, in order legally to justify the confinement of a person of unsound mind. In fact, out of 4028 private patients (many of them possessed of considerable property), who were confined in asylums on 1st of January, 1848, only 245 had been found lunatic by inquisition." (p. 9.)

Besides the injurious effect of excitement, alluded to by the Commissioners, the publicity which is necessarily incurred renders the individual afterwards useless to society, and forces him to spend his life in retirement, brooding over the unfortunate circumstance of his malady, which was, perhaps, of a transient nature, having been published to the world. Protected as the insane are now, a commission of lunacy should never be asked for, until the disease has shown itself to be permanent; and not even then, unless absolutely necessary for the preservation of his property.

In reference to "locking up," we find the Lord Chief Baron asking Dr. Stillwell, "If she were fit to go out alone, why lock her up?" To which Dr. Stillwell properly replies, "I allow them to go out alone, to see how far they have recovered, and how far they are able to conduct themselves in the world." We adduce this, in the first place, to show that the "locking up" was all in the judge's own imagination, and that Miss Nottidge had fully as much liberty as she could prudently be trusted with; and, in the second place, to point out how suitable a well-regulated asylum is for every case, inasmuch as the amount of control exercised will be the minimum necessary; and therefore patients, whatever be their state, will enjoy more liberty than they could do if they were confined at home or in a private house. It is quite clear that the control exercised over the patient, for some time before she made her escape, had been merely moral and reduced to the minimum.

Startling, however, as the Lord Chief Baron's remarks were, on the second day of the trial, they were still more so on the third, when he undertook to enlighten the learned and painstaking Commissioners in Lunacy on the subject of their duty. His Lordship might have taken the trouble to ask his clerk to show him the statute under which the Commissioners act, and under which he must, by this time, have become aware that the plaintiff had been confined. The first witness called on the third day was Mr. Mylne, one of the Commissioners in Lunacy and a member of the bar, who, after stating that, in his official capacity, he had visited Miss Nottidge while she resided with Dr. Stillwell;—that her case had been the subject of much inquiry and discussion amongst the Commissioners at various meetings;—that he was quite satisfied that the patient was of unsound mind;—that the late Dr. Prichard, one of the Commissioners, had expressed a much stronger opinion even than himself, as to the lady being a very fit subject for confinement in the asylum —had his examination interrupted by the Lord Chief Baron as follows:

"*The Lord Chief Baron.*—Mr. Mylne, was this lady in such a state of mind as to be dangerous to herself or others?

"*Mr. Mylne.*—Not so far as I was aware of; not so far as I knew.

"*The Lord Chief Baron.*—If she were not so, then how was it that you kept her in this asylum for seventeen months?

"*Mr. Mylne.*—It was no part of my duty to keep her there. I was only to liberate her if I saw good and sufficient reason for adopting that course.

"*The Lord Chief Baron.*—It is my opinion that you ought to liberate every person who is not dangerous to himself or to others. If the notion has got abroad, that any person may be confined in a lunatic asylum or a madhouse who has any absurd or even MAD opinion upon religion, and is safe and harmless on every other topic, I altogether and entirely differ with such an opinion; and I desire to impress that opinion, with as much force as I can, in the hearing of one of the Commissioners."*

The examination was then resumed; and, after Mr. Mylne had stated his experience as a Commissioner, and that it was the unanimous opinion of the Commissioners, that the plaintiff had been of unsound mind up to 1848, the following occurred:

"*The Lord Chief Baron.*—You say of unsound mind, Mr. Mylne. Had she any unsoundness of mind on any other subject under heaven, except as to entertaining these peculiar religious notions?

"*Mr. Mylne.*—Miss Nottidge did not exhibit any symptoms of insanity on any other subject, my Lord, *that I observed.*"

That we may not be accused of misrepresenting or exaggerating the views of the learned judge, we extract the following from his charge to the jury. After stating that the verdict must be for the plaintiff, on the plea of "not guilty," which we have already stated ought not to have been put on the record, he proceeds as follows:

> "Then, as to the next plea—the plea of justification—viz. that the plaintiff was a lunatic and not capable of taking care of herself, and was in such a state of mind as would be likely to injure herself and other persons, and that it was in consequence of her being in that state that they had put her in a place of safety:—that plea was not made out. Now, he was bound to say, that the law had been correctly laid down by the learned counsel who had just sat down [Mr. Cockburn]—viz. that, if the jury considered that the plaintiff was not in such a state as to be *dangerous to herself and others*, then that the plea to that effect not having been made out, the verdict ought to be for the plaintiff on that issue also. The evidence had clearly shown, as applicable to this branch of the case, that the *conduct of the plaintiff had been perfectly consistent, even in respect of her delusions.* The lady entertained a strong opinion on a religious subject, and to that opinion, whether right or wrong, she had adhered. Then it appeared to him, that the defendants were not in any way justified in having adopted the course they had taken, unless the jury should think that the plaintiff was *of unsound mind, and dangerous to herself or others. If she were not so*, then the defendants had no right to go down and drag her away, as they had done, from her home—for Charlinch was the home she had chosen—and then to cause her to be placed in an asylum. If, then, the jury should be of opinion, that the plaintiff *was not in that state of danger*, it was clear that their verdict on the second plea must be for the plaintiff also. The question, however, was entirely for the jury, and they must exercise their own judgment in the matter. If, in the end, they should determine on finding for the plaintiff, then they would have to consider, what amount of damages they would award to a lady, who, although *perfectly sane, unless it were upon the subject of religion*, had been *incarcerated* in a lunatic asylum for the space of seventeen months. *There could be no doubt, that if this lady were not insane* AND *dangerous, a most unjustifiable outrage had been committed on her by the defendants, in their own persons*—a most unjustifiable outrage had been committed on a lady, who, it was admitted, was, on all other subjects, perfectly sane."

His Lordship, after touching on the toleration which ought to be extended to all religious opinions, so long as the principles and acts adopted were not forced offensively or contrary to law upon the public notice, or against the public morals, and declaring that the brotherhood of Agapemone were as much entitled to be treated with respect, proceeds to remark, in very gentle terms, on the omission of executing settlements before the *extempore* marriages took place. His words are:—

> "There was a point in this transaction, upon which he felt called to offer a remark. It was, that, whilst three of these sisters had been married to three members of this fraternity, not one of them had had the precaution of having a settlement drawn. It would have been not merely wise, but nothing more than right, that settlements should have been made, to provide a maintenance for the wives in the event of anything happening to the husbands. It would have been well if these gentlemen had had this done; for much cause of suspicion of imputed motives, in uniting themselves to ladies much older than themselves, would thereby have been removed."

Having thus quietly animadverted on the schemers, his Lordship winds up his charge with the following remarks on the unfortunate defendants:

> "He very much doubted whether, if, in this case, the plaintiff had been a man, or living under the protection of a husband, the defendants would have dared to ave taken the step they had. When consulted by the mother, they ought to

have refused to have taken that step until a medical examination or an *inquiry by commission* had been made. But they had not done so, and therefore had made themselves liable to such a verdict as the jury might think fit to impose upon them."

In reading the remarks of the Lord Chief Baron, made to the witnesses, and contained in his charge to the jury, we cordially sympathise with Dr. Conolly in the indignant remarks now to be quoted:

> "And all this takes place unreproved in a Christian country; in a country where an appearance of honesty and general morality is at least generally respected! All the dishonorable and blasphemous parts of these strange transactions are overlooked; and the removal of this unfortunate lunatic to a house, where her money would have been secured from legalized robbery, and her person from the possibility of legalized prostitution, is censured with all the dignity of the bench by your Lordship, and stigmatised with all the fervour of the press, in the daily and weekly newspapers, as an outrage not to be tolerated.
>
> "Nor does one suspicion seem ever to have flitted across the bench, or to have entered the mind of the writers for the press, that this Abode-of-Love-God, who signs himself Amen, and has destroyed prayer for ever, and hastened the coming of the kingdom of heaven, and placed the game of hockey among the immortal recreations of ladies and gentlemen;—this man, whose word would seem to be as absolute among his dupes as a belief in his divinity can make it, and according to whose system sin can be committed no more,—even extended his power beyond securing their property. No, not even at this time, when so much is said about the protection of women, does it seem to be suspected that a mock religion or a boundless fanaticism may sanction modes of worship which tend to destroy all sense of modesty.
>
> "All this is passed over; and we do but find undeserved and foolish reproof thrown upon the Commissioners in Lunacy, whose whole time is spent in endeavouring to protect the insane and helpless, and to prevent the improper detention of persons able to take care of themselves and their property."

The opinion repeatedly expressed in most distinct terms by the Lord Chief Baron is, that no one who is not dangerous to himself or others ought to be confined; and, as a corollary, that the Commissioners in Lunacy ought to liberate every such individual who may be confined. Thus, nine tenths of the patients at present under treatment would be liberated. We have already, in this article, exposed the absurdity of a doctrine, which would deprive patients of that treatment which is necessary for the cure or alleviation of their malady, and thus add to the number of incurables, which is, unfortunately, at this moment, so much greater than it ought to be,—which disdains to prevent evil, but waits patiently till some horrid act is attempted or perpetrated,—which scorns to protect the weak against the snares of the unprincipled,—and which would permit families to be harassed or ruined, and public decency to be violated, from a tender regard to the liberty of the subject! It may not, however, be amiss to fortify ourselves with the opinion of the Commissioners in Lunacy. Let the reader, then, peruse the following extracts from their letter to the Lord Chancellor:

> "If, in practice, the class of insane persons placed in confinement were limited to such as had previously exhibited some dangerous tendency, the main purposes of the legislature, in the statutes now in force, would be frustrated, and a most fearful hazard be incurred. For, inasmuch as the tendency to danger first shows itself more frequently in the later than in the earlier stages of the disease, when alone such disease is likely to be cured, a large proportion of patients of this class

would be deprived of the benefit of proper curative treatment, until they had placed either themselves or other persons in peril, and had not improbably (owing to the lapse of time) become themselves incurable.

"Moreover, the difficulty of ascertaining whether one who is insane be dangerous or not, is exceedingly great, and, in some cases, can only be determined after minute observation for a considerable time. It is the general opinion of experienced persons, that whenever an insane delusion exists, the patient can in no case be considered as otherwise than dangerous, although the tendency may never have been actually exhibited by overt acts or expressions; and in our own experience, we have known patients whose disorder has appeared to have abated, and who have been treated as harmless for a considerable time, but who, nevertheless, upon some sudden, and apparently unprovoked, impulse, and without betraying any preliminary violence or irritation, have attempted, and in some instances have effected, the destruction of themselves or others.

"In the cases of monomaniacs, and patients suffering under religious and other delusions (not apparently tending to any dangerous result) we have known repeated instances of their attempting and committing self-destruction, homicide, and acts of violence, owing to some imaginary sentence of condemnation, or under the influence of some imaginary voice or spirit." (pp. 5, 6.)

"Upon this point [the opinion of the Lord Chief Baron] it is of vital importance that no mistake or misconception should exist, and that every medical man who may be applied to for advice, on the subject of lunacy, and every relative and friend of any lunatic, as well as every magistrate and parish officer (each of whom may be called upon to act in cases of this sort), should know and be well assured that, according to law, any person of unsound mind, whether he be pronounced dangerous or not, may legally and properly be placed in a county asylum, lunatic hospital, or licensed house, on the authority of the preliminary order and certificates, prescribed by the acts 8 and 9 Vict. c. 100 or c. 126, (as the case may be.)

"The order and certificates, thus obtained, show that the person mentioned therein is either a lunatic, an idiot, or a person of unsound mind, and a proper person to be confined, and *fully justify all parties* in the matter; and they enable the proprietor or superintendent of any hospital or licensed house, to plead them in defence to any action, and are, in the words of the statute, a justification for 'taking, confining, detaining, and retaking' the patient (see 8 and 9 Vict. c. 100, s. 99)." (pp. 9, 10.)

Such was undoubtedly the intention of the act; but in the case of Nottidge *versus* Ripley and another, *all* parties were not justified, even although there was not the shadow of a suspicion of an improper motive. She was deemed insane by her nearest friends;—she was found to be insane and a fit subject for confinement by the medical men called in to examine her and decide;—she was found insane, and reported to be so, by the medical officer in charge of the asylum, to which she was sent;—her case was repeatedly and carefully examined and considered by the Commissioners in Lunacy, medical and non-medical; and the result was, that they were unanimously of opinion that she was of unsound mind. At the trial, unexceptionable witnesses prove all this; and it was further proved, that all her relatives, who concurred in the measures adopted, were most affectionately disposed and acted most kindly towards her. Nothing irregular in the course prescribed by the act was detected,—and yet the defendants, who had acted throughout kindly and judiciously, are saddled with damages to the amount of £50, and all the expenses of the action; because the case was tried before a judge, who knew nothing of the subject of insanity, and who chose to give expression to hasty and crude opinions; and by a jury who seem not to have been any better informed than the individual who undertook to direct them. Of a truth, there is something defective in the state of the law at present, and the sooner it is remedied the better.

To revert to the Lord Chief Baron's favorite proceeding of a commission: we cannot see how he could recommend this, when he so strongly insisted on the doctrine, that no patient can be legally confined, unless he be dangerous to himself or others. To obtain a Commission of Lunacy, it is not necessary to prove that the individual is dangerous to himself or others, and yet the patient may be confined till the commission is quashed. Hear what the Commissioners in Lunacy say in their letter on this point:

> "It is well known that all Commissions of Lunacy are founded, not on the party being dangerous, but on the fact of his being insane, and incapable of managing his own affairs; and yet every one who is found lunatic on inquisition is placed under the care of a committee of his person, who thereupon possess the entire control over the lunatic, and may keep him in confinement so long as the commission remains in force." (p. 5.)

How is this state of matters to be reconciled with the Lord Chief Baron's other opinions?

We have now placed before our readers the whole particulars of the case of Nottidge *versus* Ripley and another, with such remarks and explanations as the limits of an article of this nature permitted. Upon several of the topics introduced we have more to say, but must be content to wait for some other opportunity. What we have now offered will, we trust, clear the way for the consideration of other cases. We strongly recommend the perusal of the very satisfactory Letter of the Commissioners in Lunacy to the Lord Chancellor; the eloquent Remonstrance, by Dr. Conolly; and a very judicious article which appeared in 'Frazer's Magazine' for October last. The remarks in the 'Lancet,' and the letters of Dr. Stillwell, and Dr. Marshall Hall, in the same journal, deserve also to be carefully read. As Dr. Conolly states, it is but justice to mention, that the editor of the 'Lancet' was among the first to notice and condemn the doctrine of the Lord Chief Baron. We have not thought it worth while to notice the attempt, made by the 'Times,' and followed up by others, to defend his lordship, upon the strange supposition that he did not mean to say what he did, but something else! When the subject was mentioned in the House of Lords, Lord Brougham assumed that the report was inaccurate. This, however, has not been acknowledged to be the case. We have given the Lord Chief Baron's own words, as reported in the 'Times,' and leave our readers to put what interpretation they think proper upon them.

Here, for the present, we must leave the subject; but we deem it one of such importance, that we shall take the earliest opportunity of pursuing it; more especially as other cases have occurred, since Miss Nottidge's, in which the very same errors have been committed by judge and jury. To some of these we shall call the attention of our readers in our next number.

Art. VIII.

Illustrations of the Effects of Disease and Injury of the Bones; with Descriptive and Explanatory Statements. By Edward Stanley, F. R. S., President of the Royal College of Surgeons of England, and Surgeon to St. Bartholomew's Hospital.—*L ndon*, 1849. 4to, pp. 30.

We had occasion to refer to this work, in an article on Mr. Stanley's volume on 'Diseases of the bones,' in the last Number of our Journal. The synchroncus appearance of the two works, and the references from one to the other, do not *necessarily* associate them,—the author having intended that the illustrated volume should serve as a companion to that which we have already reviewed, but also that each be available by itself for those who may not possess, or desire to purchase, the other.

It is, of course, difficult to convey any just impression of the principal feature of such a work as the present, viz. the illustrations: they are admirably-drawn litographs, beautifully coloured, and bearing all the impress of accuracy and truthfulness; indeed, it is evident that neither care nor expense has been spared in their production. In number, the plates are twenty-four; but many of them contain two or more figures. The letter-press consists of little more than an explanation of these plates, with references to the cases from which the illustrated specimens were taken. The majority of the cases came under Mr. Stanley's own notice; some few were supplied to him by friends.—With these general introductory comments, we proceed briefly to glance at each of the plates, confining ourselves to the very few remarks which they may suggest.

The *First* Plate presents us with no fewer than seven figures, illustrating diffuse suppuration in bone, and enlargement of its tissue by expansion and induration. The head, neck, and a portion of the shaft of the femur are the parts selected for exemplifying the first of these forms of diseased action,—the cancellous and medullary tissue being highly inflamed, and yellow spots marking the seat of purulent deposits in the cells. The suppuration, in this instance, ensued on amputation for encephaloid disease, a month before death. Figures 2 and 3 represent longitudinal and transverse sections of a humerus, enlarged by expansion of its textures, depending upon separation of the osseous lamellæ and widening of the cells. In Figures 4 and 5 we have the two ossa humeri from another boy, eight years of age, a patient of Mr. Arnott, and the subject of scrofulous caries, for which the elbow has been excised. The contrasted appearance of these two bones exhibits very well the inflammatory enlargement of the diseased one; and a transverse section (Figure 6) shows the separation of the lamellæ and widening of the cells. Figure 7 represents a section of a tibia, enlarged and indurated from chronic inflammation of its tissue. The author remarks, regarding this specimen, that—

> "It is probable the first change in this bone consisted in the expansion of its texture, and that subsequently the separated lamellæ became thickened, hardened, and consolidated together; the hardening of its tissue being caused by osseous deposits upon the insides of the Haversian canals, narrowing some of them, and obliterating others. Accordingly, a bone thus altered is less vascular and less oily, than healthy bone." (p. 2.)

The *second* Plate contains three figures, illustrative of hypertrophy of bone. The first, that of a tibia represents spots of circumscribed hypertrophy, consequent on limited inflammation of the periosteum. In the second is exhibited a section of a cranium, much thickened by hypertrophy of parts of its diploë; the outer table has yielded, but the inner table has not encroached on the cranial cavity. Mr. Stanley surmises that this condition results from rickets in early life, the cranial bones at this period becoming both thickened and softened; the former condition being retained in the subsequent reparative process, when the bones regain their hardness. The third figure is that of a tibia, hypertrophied from inflammation following a blow. The lamellæ arch both inwards (towards the medullary canal) and outwards: the thickening and consolidation follow this separation. Our author takes occasion to notice, in connexion with this specimen, that obliteration of the medullary tube of a cylindrical bone is effected in this way, and not, as is usually supposed, by ossification of the medullary membrane. He questions, indeed, whether, under any circumstances of disease, osseous substance is ever produced from this highly organised and sensitive tissue.

The first figure in the *third* plate is the representation of a portion of a tibia which has recently suffered compound fracture. The fractured end had perished; and the chief interest of the specimen is associated with the illustration it affords of the first stage in the process of exfoliation. The inflamed periosteum is thick, vascular and easily separable from the bone; and the groove of separation between the dead and living bone is just commencing. "Section of a tibia, exhibiting changes consequent on the formation of a small abscess within its medullary texture," *is the* subject of the second figure in this Plate. It illustrates, in an interesting manner, the early stage of a secondary, but necessary complication of the primary affection, viz., acute periostitis; which is itself in these cases, the preparatory step to ulceration in the walls of the bone, and the formation of a channel for the escape of the confined matter.

Plate the *fourth* contains four illustrations of varieties of ulceration, in the bones of the skull and leg. One of these exhibits the crumbling or mouldering condition of the osseous tissue, described by the old writers as caries, but which Mr. Stanley regards as "apparently consisting in a fatty degeneration of the bone." The diseased change affects both the cancellous and compact tissues.

Circumscribed abscess is illustrated in the *fifth* plate. The parts affected were the lower articular extremities, severally, of the femur and tibia. In the former it was inferred, from the history of the case (the patient's limb having been amputated for disease of the knee-joint), that the abscess was the primary affection, and that when the matter was poured into the joint, destructive inflammation ensued. In the other instance, that in which the tibia was the seat of the disease, the abscess is large and very defined, with one small aperture by which the matter escaped into the surrounding soft parts. The disease had been twelve years in progress, and illustrates the paroxysmal character of the pain, so frequently observed in these cases, there being, at times, complete remission of the suffering; this varying condition doubtless depended on the degree of distention of the cavity containing the pus.

A more extended example of the same affection (abscess in bone) is portrayed in the ensuing plate, the *sixth*. The upper part of the tibia was the seat of the disease, the first exciting cause of which was a blow received seventeen years before the limb was parted with. The cavity in the interior of the bone was lined with a vascular membrane which secreted the pus, and was capable of containing upwards of sixteen ounces of fluid. The osseous walls of this abscess were also of extreme thickness. The patient used to plug the external aperture, and discharge the pus once or twice a day.

The first subject illustrated in the *seventh* plate affords a marked contrast to the last, in the rapidity of its course and the fatality of its effects: it is that of inflammation of the medullary membrane of the tibia. The patient was a youth of eighteen, and the disease ran its course in seven weeks, when the limb was amputated. There are deposits of pus throughout the medullary tube of the bone; the inflammation had extended through the bone itself to the periosteum; and grooves of separation had already commenced between the shaft and articular extremities. The periosteum was separated from the shaft of the bone, and of a deep scarlet hue, thick, and velvety on its inner surface. All these points are very faithfully and beautifully represented. The constitutional disturbance and severe suffering occasioned by this formidable disease had been such, that it was feared the patient would not bear the shock of the operation for the removal of the limb; but he ultimately rallied. Figure 2 in this plate exhibits necrosis of the walls of the tibia, without involving the cancellous texture. Granulations had sprung up between the dead and living structures and new bone was in process of formation from the internal surface of the periosteum. The *cause* of this partial death was, the application of nitric acid to an ulcer on the front of the leg; and the importance of exercising great caution in the employment of so powerful a remedy in the near neighbourhood of bone, may be pointed out as the moral (if we may so express it) of the illustration.

In the *eighth* plate are four figures, representing different conditions of the reparative process consequent on necrosis in animals. Three of these are examples of reproduction of the shaft of a bone, apparently by periosteum alone, the death of the original shaft ensuing on destruction of its medullary tissue. The fourth figure shows the reparation of the walls of a bone by its medullary tissue, independently of the periosteum. An instance of this latter form of reparation was observed by Mr. Stanley in the case of a man referred to in his present work, and narrated in his treatise. The ulna was partially torn away, and the breach repaired by the ossification of granulations springing up from the medullary tissue.

Plates IX, X, and XI, are devoted to the "varieties of necrosis;" and, therefore, subserve likewise the purpose of illustrating different stages of the reparative processes consequent on destruction of the original tissue. The figures contained in these Plates strike us as particularly beautiful, and as amongst the best in the volume. In the first of the series in this section, we find portrayed a specimen of necrosis of the entire shaft of the tibia: it is separated from the articular ends, and a new shaft is in progress of formation from the periosteum of the old bone, this membrane investing the exterior of the new deposit. Next, we have a specimen of necrosis of the os calcis, with the dead bone in progress of separation : the exciting cause was, in this instance, apparently, abscess in the centre of the bone. Another exhibits necrosis of the tibia of a dog, produced by the application of caustic to its surface : and a fourth, partial death, from disease, of the front surface of the tibia. In the succeeding Plate we find a second specimen of necrosis of the whole shaft of the tibia ; and one of partial death, which was the specimen used by Mr. Abernethy in his lectures to illustrate the views of Mr. Hunter respecting the agency of granulations in the absorption of dead bone, this process having taking place only at those points where the soft granulations were in contact with the dead bone. This view of the subject Mr. Stanley speaks of as that " formerly held ;" whilst he remarks that " in the modern view of this subject," the roughnesses and excavations on the outer surface of the dead bone " would be ascribed to the detachment of portions of the outer lamellæ of the bone in connexion with its periosteum." Necrosis of the entire body of the lower jaw, consequent on salivation, is also depicted. Likewise two specimens of an isolated fragment of dead bone in the centre of their cancellous structure, at the ends of, severally, the radius and tibia. Lastly, we have an example of necrosis of the entire shaft of the femur, in a lad of sixteen, whose limb was amputated through the trochanter major by Mr. Lawrence, in consequence of the exhausting effects of the disease, which extended to, and involved, the knee-joint.

> " In this example of necrosis," says our author, " the consequences are observed which ensue when the shaft of a bone is detached from its articular ends before the formation of the new bone is sufficiently advanced for it to become the medium of connexion between them, and thereby restore firmness to the limb. Under such circumstances, it is to be expected that the articular ends will become approximated, with shortening and distortion of the limb ; it besides often happens, as in the present case, that the exfoliated end of the shaft becomes protruded through an ulcerated passage in the soft parts and integuments." (p. 11.)

The history of this case is recorded in the sixth volume of the 'Medico-Chirurgical Transactions.'

Varieties of exostosis are the subject of Plate XII. One figure represents the section of a large osseous tumour, with a cavity in its centre, growing from the head of the tibia. The thick walls were solid, inclosing a central cavity, which secreted pus in abundance. Mr. Stanley conceives that the tumour had been, in the first instance, solid throughout, and that suppuration had taken place in its centre, followed by ulceration of part of its walls, so as to allow the escape of the matter. He submits, however, the possible alternative, that it might have been an abscess originating within the bone, which had progressively become surrounded by thick osseous walls. There are, also, two examples of exostosis from the second and ungual phalanges of the great toe ; and one from the anterior border of the bicipital groove in the humerus. In Plate XIV we have other illustrations of similar osseous growths from the femur ; and one of a large cyst formed by expansion of the condyles of the femur : this cyst was filled with blood, partly fluid and in part coagulated. Mr. Stanley remarks, that though this disease is described as the sanguineous tumour of bone, he thought it doubtful whether it did not belong to the category of encephaloid disease, inasmuch as there were small portions of soft substance resembling encephaloid deposit projecting from the inner surface of the cyst. The limb was amputated, and the disease did not return.

We have passed by Plate XII, which seems almost out of place. It contains two figures illustrating a case of soft, vascular tissue, growing from the interior of the lower jaw, at its centre. It was removed, together with the entire front of the jaw, by Mr. Loyd, and the disease did not recur. The third is that of a very large tumour, consisting of moderately firm gelatinous substance, originating in the humerus; and in its centre was a large cavity filled by serous fluid. Its chief interest consists in its having presented, "in every part of its surface, the regular and forcible pulsation of aneurism." Yet, after death, it appeared that this pulsation "could not be ascribed to any other cause than the contiguity of the tumour to the brachial artery." The fourth figure in this Plate represents a frightful distortion of the human face, from the presence of a huge growth, partly vascular, partly cartilaginous, which originated in the bones of the upper jaw, filling the cavities of the nose and orbits, and extending into the cavity of the cranium.

Plate XV has three figures: two of these are of malignant fungus of the tibia, one originating in the cancellous structure, the other springing from the periosteum; in both, the disease was caused by violent and repeated injuries to the investing soft parts. The third figure represents a very large growth, likewise from the tibia, consisting of a combination of soft vascular tissue, and of cartilage.

The succeeding Plate (XVI), has a variety of subjects; viz. "remarkable effects of inflammation in periosteum and bone; diffuse suppuration in bone; varieties of necrosis, exostosis, fibrous tumour within the antrum." These we cannot stop to particularise.

In Plate XVII, we have a section of "frightful deformity" we just now alluded to: and another specimen of a large cyst in the lower part of the femur, containing blood and encephaloid substance inclosed in cells, is delineated in two of the figures. Figure 4 exhibits the section of a humerus "in the medullary texture of which there are deposits of hard carcinomatous matter." The disease primarily affected the right mammary gland; and subsequently both humeri, the sternum, the bodies of the vertebræ, the lungs, and bronchial glands.

A fine specimen of encephaloid tumour is depicted in Plate XVIII. The seat of the disease, in this case, is the lower extremity of the femur. The colour and consistence of the morbid product closely resembled healthy adult brain: the same form of deposit was found in the cancellous structure of the tumour, whence our author conjectures that the disease originated. The condyles of the femur had disappeared; but their cartilage remained entire, and yielding by expansion, formed the capsule of the tumour; the synovial membrane of the joint also remained intact. The tibia from the same limb is likewise represented, with the periosteum removed, to show the discoloration of the exterior of the bone from "minute effusions of blood into its substance." In the same plate we find the section of a knee-joint, showing the tuberculous stage of Scrofula in bone. The granules of tubercular matter are deposited in the cancellous structure, which is soft and compressible from the absorption of its earthy constituents. A portion of an osseous cyst from the lower jaw is also figured here.

Plate XIX likewise, is occupied with tumours of bone. Three of the figures represent parts taken from the same subject, viz. the upper part of the tibia and both extremities of the femur. The principal part of the disease is in the tibia, which is surrounded by a large tumour, partly consisting of cancellous and ivory-like bone, in part of fibrous and encephaloid matter. The medullary and cancellous textures, as well as the periosteum of the femur, present similar deposits. This disease belongs to the class of malignant osseous tumours, denominated by Müller "osteoid." We have here also a "well-marked example of enchondroma." It originated from the humerus, and was four years in progress, ultimately sloughing and suppurating; under which exhausting processes the patient (a man of fifty-five) sunk and died. This cartilaginous growth is represented as of enormous size, occupying the entire shoulder, and with a nodulated surface. Great part of the humerus had disappeared, but the scapula and clavicle were sound, and no disease was found in any other part of the body. Did the alternative of amputating the limb of this patient at the shoulder-joint occur to his medical attendant? We think it might have been undertaken with a reasonable prospect of success, even though it had been difficult to procure sufficient sound integument to close the wound. However, it is rash to conjecture what might have been done, without being in full possession of all the particulars of the case.

A new class of subjects is now brought under our notice, viz. Rickets. Plate XX contains three drawings of rickety bones, two sections of thighbones, and one of the tibia. In the first, the soft stage is exhibited, the interior of the bone presenting a mixture of cartilaginous and gelatinous substances inclosed in cells. The second illustrates the hardening and thickening of the walls of the bent-bone along the concavity of its curve. In the third figure the curve is more angular, and the bone (tibia) at that point is solid, without medullary tube or cells.

Three figures of "diseases of the spine" fill up the remainder of Plate XXI. One is a remarkable example of destruction of the whole series of intervertebral fibro-cartilages in the dorsal and lumbar regions; the adjacent parts of the bodies of the vertebræ were ulcerated, but the functions of the spinal cord were not impaired. The second exhibits a very angular curve from extensive destruction of bone, followed by firm union of the approximated parts. And the third derives its interest from being the preparation taken from the body of the boy, on whom Mr. Pott first proved the value of issues in ulceration of the vertebræ. He died of disease of the lungs.

The three remaining plates are devoted to the illustration of the reparative processes after fracture. The first of this series of figures (Plate XXII) is very interesting in a practical point of view. It represents a part of the skull of an individual, who had been the subject of a comminuted fracture of the parietal and occipital bones, two years before death. Some of the fragments had been removed, others were left: of the latter, two are united to each other and to the adjacent parts of the skull by bone; and it appears that this new osseous product was derived principally from the inner table of the skull; which, as Mr. Stanley observes, one might anticipate from the higher degree of organization of that portion of the cranium. This specimen, therefore, (says our author) "practically enforces the caution to be used in disturbing insulated fragments of the cranium, for it shows in them ample power of reunion." Two figures in the same Plate with the above exhibit, severally, the process of separation of a necrosed fragment from the surface of the tibia; and a similar state, accompanied by partial reparation, after fracture.

Next we have, in Plate XXIII, two illustrations of ununited fracture; one of the radius and another of the humerus. In the former, the fragments of the bone are united only by cellular tissue; in the latter, a membranous capsule surrounds the fractured ends. Respecting these specimens our author remarks:

> "The two foregoing specimens of ununited fracture are examples of the least frequent conditions of such bones at a distant period from the occurrence of the injury. More frequently the opposite surfaces of the bones are connected by an intermediate fibro-cellular tissue: and the failure of osseous union is then but an arrest of the reparative process, which has stopped short of the stage of its completion, when the fibro-cellular tissue should become converted into bone." (p. 25.)

A specimen of union by a surrounding osseous ring, and one of perfect union after simple fracture,—each of the os humeri—are likewise figured here. Then we have a longitudinal fracture of the femur, extending from the base of the great trochanter downwards, and united by horizontal osseous fibres; and one of broken tibia united, with the development of new cancellous structure between the two portions of bone.

Of the five figures in Plate XXIV (the last in the volume) three illustrate the process of union of a simple fracture through the tibia of a dog. The remaining two exhibit, severally, the union of a fractured tibia by an intervening bridge of bone, a portion of the shaft being in course of exfoliation; and a simple fracture of the femur, united by a solid mass of osseous substance extending five inches along the bone, where the horizontal surfaces of the two portions had been in contact.

It only remains for us now to notice the "observations on the reparation of fractures," appended by Mr. Stanley to the present volume. As regards man, the author limits himself to the consideration of the "nature and source of the medium of union, and of the characters and purpose of the adventitious osseous deposits around the fracture." He states that the result he has obtained from the opportunities he has had of examining fractured bones, is that—

> "The substance developed between the surfaces in apposition, at first soft and cellular, gradually hardens to the condition of a dense fibro-cellular tissue, in this stage receiving the osseous particles, which, by coalescing, convert this tissue into osseous substance, and consolidate it with the adjacent surfaces of the bone."

This condition has not been found by Mr. Stanley to vary, whether the fractured ends, or their overlapping periosteal surfaces, have been in contact. His impression regarding the *source* of the uniting material is, that it is a production from the surfaces of bone that happen to be in apposition. We give the summary in his concluding paragraph, as it will enable our readers better to judge of our author's views, by having them placed succinctly before them in his own words:

> "The conclusions from the whole series of facts bearing on this subject, may thus be stated, that the undisturbed ends of a fractured bone in man unite by the medium deposited between its fractured surfaces; that the amount of adventitious osseous deposit accompanying the reparation of a fracture is proportionate to the

degree of irritation, which from the unquietness of the ends of the bone is excited in the surrounding parts; that the seat of this deposit is the periosteum, and cellular tissue adjacent to it; but that the characters of this deposit are wholly distinct from those of the provisional callus in animals. Such will be the explanation of the seemingly irregular osseous deposits around fractured bones. The interpretation of their osseous productions, of well-defined shape and texture, found upon this or that side of a fractured bone, or filling up the hollows between its displaced portions, must be sought for by observing in what direction such additions of support and strength were required." (p. 29.)

We now close our review of this volume, the careful and analytical examination of which has afforded us much pleasure. We need scarcely observe that it constitutes an invaluable accompaniment to the "Treatise," which is frequently referred to in the foot-notes, for details of cases, &c. But, at the same time, it constitutes an independent volume, which may be perused, and kept on the shelf for consultation, with infinite advantage to those, especially, whose opportunities of seeing practice are more limited than such as fall to the lot of a London hospital surgeon.

Art. IX.

The Physiognomy of Diseases. By George Corfe, m.d., Resident Medical Officer at the Middlesex Hospital, &c. &c.—*London*, 1849. 4to, pp. 150.

Every practitioner knows how important a knowledge of the physiognomy of disease is, whether in respect to diagnosis, prognosis, or treatment. The "facies Hippocratica" is a physiognomical description that has survived the mutations of more than 2000 years, and sufficiently proves the antiquity of physiognomical investigation. Hitherto there has been little of science brought to bear upon the subject; the medical writer has only expanded the popular method, and told us in detail "how the patient looks." Dr. Corfe has gone through the wards of the Middlesex Hospital for "nearly twenty years," as he states in his dedication, or for "nearly eighteen years," as he states in his introduction, or for "eighteen years," as he states elsewhere, and has used his eyes physiognomically. The result has been exactly what would have occurred to any other practitioner with numerous opportunities of clinical study, namely, a conviction of the importance of attending to the physiognomy of the sick. On taking up the book, we hoped, indeed, for something more,—for at least a practical treatise expressly on the subject, if not a scientific treatise; but the work turns out to be a desultory collection of cases, treated in the Middlesex Hospital, or observed by the author, commingled with various theories, and with moral, physiognomical, and medical observations. It is, in fact, a deception, so far as its proper subject is concerned. It should have been termed, "Notes of the Practice of the Middlesex Hospital, with critical commentaries."

The practice of a large hospital requires a certain system of routine,—special formulæ to facilitate prescribing and compounding, and routine methods of treating the everyday occurrences of the clinique. Such formulæ and methods having received the stamp of experience, are useful additions to empirical medicine, and as such we shall notice some of the *mems.* of Middlesex Hospital practice.

Symptomatic cerebral disturbance is considered by Dr. Corfe under the head of "Coma, or loss of consciousness, from bile, worms, &c., or other irritants." He first notices apoplectic symptoms, occurring from hepatic derangement. An individual who leads a sedentary life, and partakes freely of animal food and beer, begins to experience frontal headache, confusion of intellect, vertigo, and tinnitus aurium; his sleep is heavy, and disturbed with horrid dreams; his gait tottering—dragging, perhaps, one leg; his eye heavy and dull; and he is apt to burst into tears. These are often supposed to be the premonitory signs of apoplexy (which, indeed, they are); but a copious purgation, and not venesection, is the best remedy. Dr. Corfe describes the practice of the Middlesex Hospital as follows:

> "As soon as the patient is in bed, a full dose of calomel and colocynth, such as five grains of the former and ten grains of the latter, is administered, followed up in four hours by a large cathartic draught; his head is shaved, and, if there is much heat about the forehead, eight or ten ounces of blood may be taken away, by cupping behind the ears. But this is by no means an ordinary part of the treatment. In the course of the following morning, the nurse shows us a copious evacuation, dark as the darkest mahogany or chocolate, fetid,—abominably so, and containing but little fecal matter. This is cystic bile—bile that has been 'laid up' in the gall-bladder—that has become inspissated, heavy, and morbid, and could not find its way into the common duct, owing to the gorged state of the hepatic biliary system on the one hand, and to the congested mucous surface of the duodenum and stomach on the other. The bile is, therefore, a noxious accumulation, and acts as a poison upon the nervous and vascular systems. . . . . . The dose is again and again repeated, perhaps for five, seven, or ten times, and at length purely healthy bile passes away." (p. 26.)

The result of this smart purgation is, the disappearance of the various cerebral phenomena and a restoration to health, except, perhaps, "a slight weakness of the arm and leg." To remedy this, "a blister is now laid over the whole length of the longitudinal sinus, and the discharge is kept up from its surface by means of savine ointment; whilst the purgative treatment alluded to is still persevered in from time to time." Dr. Corfe thinks we can rarely do harm by this system of mercurial purgation and blistering the vertex,—a proposition admitting of some doubt.

The stomach-pump used in cases of insensibility and drunkenness. A public hospital is the ordinary refuge of persons found lying senseless in the streets. Some are cases of apoplexy, others are cases of comatose drunkenness. In *every instance* (!), of late years, Dr. Corfe has helped his diagnosis of such cases by requesting the house-surgeon to empty and then wash out the stomach by means of the pump; and, if the insensibility has been from drunkenness, it has been manifested by the alcoholic odour.

> "In all cases of intoxication, the mental faculties become roused before the operation of thoroughly washing out the stomach by the pump is concluded; whilst, on the other hand, it may be said, the reverse is ordinarily the case in cerebral lesions or in mere concussions of the brain. Before we allow the tube to be withdrawn from the stomach in cases of inebriety, we usually inject three ounces of the dilute acetate of ammonia draught, which has an extraordinary effect, sometimes, in 'sobering' the head, and calming the stomach too." (p. 33.)

It seems to us, that the use of the stomach-pump in cases of cerebral lesions may aggravate the disease; and that its indiscriminate application to diagnosis, as thus recommended, is unnecessary, to say the least, if Dr. Corfe be really able, as he says, to smell the alcoholic odour in the *breath* of the comatose drunkard, Besides, he gives rules for the *diagnosis* of *cerebral* asphyxia, which, if worth anything, ought to be applied by himself.

> "Cerebral asphyxia, whether it arises from narcotism by the presence of opium, alcohol, or urea in the system, invariably presents the following characteristic features, namely—stupor, closed eyes, equal irides, but *no* paralysis. In narcotic poisoning by laudanum, the stupor is not always so complete, but that the individual may be somewhat roused by means of flagellation, pinching, &c., but especially by the agency of the electro-galvanic battery; the eyes are closed, it is true, but the irides are minutely contracted, the cornea is dull and no longer glistening, the whole organ is void of expression, and the countenance presents a dingy, livid appearance. The respirations are slow, shallow, and spasmodically performed, whilst the heart is also laboured, and the pulse slow and unequal. On the other hand, the narcotism produced by urea in the circulation, is of the most obstinate character; no agents are capable of rousing the patient, even momentarily, out of it; though the eyes are closed, yet the pupils and cornea are natural in appearance, however the iris, towards the close of the disease, may become contracted. The countenance does not present the features of a person under the influence of opium, but it is scarcely altered, except in its partaking of an anæmic cast. The respirations are equal, free, and regular, but somewhat stertorous; the pulse is above the natural standard, and there may be œdema of the body.
>
> "But when we examine the physiognomy of a man insensible from alcohol, we notice the complete stupor, it is true, but the closed eyes are no sooner raised, than we detect the red and ferrety conjunctiva, the fiery cornea, the dilated irides, and we feel the rapid pulse, and we may smell the strong fumes of alcohol in the breath." (p. 35.)

Delirium tremens, in its first stage, or when the patient is furious, is treated by the douche from a height, or by cold affusion on the head and chest, until the patient is calmed down. The use of opium, as a narcotic, has been wholly abandoned for the last two or three years; and a large proportion of the cases admitted "have been most successfully treated by calomel and aperients; . . . . . and whenever the former drug has acted briskly upon the hepatic circulation, and has brought away, for several days successively, a large amount of chocolate-coloured, offensive bile, the hallucinations have disappeared, tranquil and refreshing rest has followed, and convalescence has rapidly succeeded."

Hysterical delirium from a small quantity of alcoholic stimulant, is also treated by the cold affusion, as well as hysterical coma. Dr. Corfe gives a dramatic description of his treatment of the latter class of cases, and affords us a curious insight into the nocturnal proceedings at the Middlesex Hospital. *Dramatis personæ*—"A female, fastened down on a stretcher, fat and healthy-looking;" "a large body of police;" "a fair attendance of women;" Dr. Corfe and the *posse* of the hospital, including "Mr. House-Surgeon." *Place*—Admission-room of the Middlesex. *Time*—"About the dead of the night"—just as Dr. Corfe "has retired to bed, perhaps." Dr. Corfe ("we") "sees through the case at once;" notices "a nictitating eyelid, and a snort or groan is given; yet there she lies, unconscious, apparently, to all that is going on around her." Dr. Corfe—

> "Raises a commanding and authoritative order that all attendants shall be im-

mediately excluded;—thus Policemen, turn out the whole of these persons, both male and female.' 'Four policemen stop here to assist us'—pausing. 'Now policemen, bring her up to the light'—again pausing. 'Some severe measures must be taken in this case, Mr. House-Surgeon.' 'Nurse, bring in two or three pailsful of cold water.' 'You, night-nurse, go and procure two or three thick blankets.' 'Call up the surgery-man to shave the head.' 'Get the stomach-pump in order, if you please, Mr. House-Surgeon.' And thus one order follows another; the policemen stare, and are all attention and mute; there is a pause between each order so given; the medical officers whisper together as to the probable *exposé* that will soon take place; and whilst the cold water is running into the pails, and the blankets are being passed around her waist, and the clack of the large scissors is heard over her fine but dirty locks of hair, our patient opens her eyes, and with (apparent!) astonishment, cries out 'Where am I? 'What are you going to do with me? 'Let me go home! 'O mother, do take me away from these cruel brutes,' &c.; and"—

Exeunt omnes—fat girl—four policemen—night nurse with blankets—day-nurse with pails—surgery-man with large scissors—Mr. House-Surgeon with stomach-pump in order—and last, but not least, Dr. Corfe, the victorious commander-in-chief of beadledom,—retiring once more to bed, covered with laurels, and satisfied that he has cured his patient with the least possible fuss?

Returning from this mirthful and pleasant interlude (worthy a Molière's powers of *mise en scène*) to more serious matters, we come to Dr. Corfe's discovery of the "Heautophonon," and of the new "science of Heautophonics." Dr. Corfe says, that, if an individual talks into his hat for a few minutes, in the corner of a room, formed by two solid pieces of wainscot, and then, suddenly shifting his head from the hat, talks into the corner simply, he will find that his voice falls a semitone or more; or, reversing the experiment, will find that his vioce is half a tone higher when talking into his hat, than when talking into the wainscoted corner.

"This curious study should be pursued several days, and repeatedly gone over, before the voice can be made subservient to the detection of disease in a patient; but when the ear is pretty well tutored, and can distinctly catch the modification of sounds of one's own voice........he must then place his ear over the base of the heart of a vigorous, healthy man, and recite some portion in an even and in an audible voice, or what is preferable, he may count from fifty to one hundred; and then he should carry his ear to the subclavicular region of the right side, and again talk aloud, and he will find that his voice rises nearly half a tone. To pursue this study pathologically, he should now place his ear over the latter spot of a phthisical patient, who is labouring under complete solidification of one of the upper lobes, and once more count upwards; then shift his ear to the lower lobe of the opposite lung, which we will presume is healthy, and count again; and the voice which was bass, resonant, and vibrating to his own ear in the first spot, will now become raised or more tenor, less resonant, and less ringing.

"The same observation applies also to the alteration in one's own voice, when we talk over the solidified lung of a pneumoniac patient, who is labouring under that stage of the disease known as red hepatization; whereas, on the other hand, if there is a cavity in the upper lobes, as in phthisis, or a permanently distended lung, as in emphysema, a well-tutored ear will notice that, as he talks over such spots, the voice is imperceptibly raised a barytone, and *vice versâ*, a semitone. But, again, if the chest is full of fluid, as in dropsy of the pleura, or in emphysema, the voice of the ausculator, like the percussion, emits only a '*son mat*,'—a dead, non-vibrating, non-resonant sound. These, then, are the fundamental principles of the science of heautophonics,—from ἑαυτον (self) and φωνη (voice) (p. 56.)

Thoracic vibration is one of the phenomena with which the stethoscopist is familiar; and we think Dr. Corfe might just as well have given the result of his researches, regarding it, without pretending to found a "science," or at least have stated them in better English; and if he had added a description of the "Heautophonon"—unless it be an imaginary instrument—and omitted the Greek, we, his readers, would have been more grateful.

The *operation of laryngotomy* has been performed at the Middlesex Hospital with considerable success in adults, especially since the trocar and canula have been used instead of the knife, and the larynx or trachea has been simply punctured.

> "On several other occasions, this operation has been performed by means of the trocar, when the patients were it may be said, lifeless; that is to say, in one instance of a female, especially, she had ceased to breathe. I was called to her at three in the morning, when I found that impending suffocation was terminating her life; I hastened to the house-surgeon, Dr. S. Merriman, who rushed out of bed, and, without coat or waistcoat, came into the ward, drove the trocar and canula through the crico-thyroidean ligament, then into the larynx, and, though she lay like a corpse, yet, when the air irritated the bronchial surface, a convulsive, deep-drawn respiration instantly followed; another and another, until the livid, ghastly countenance gave place to a flushed cheek and a natural hue. The whole business, from the moment I saw her, until the tube was in her larynx, and she was breathing through it, could not have occupied five, or at most seven minutes. She perfectly recovered. The other instance was in that of an Irish labourer, Dec., 1839, who was suffering from syphilitic disease of the larynx, and which threatened to destroy his life by suffocation, when I was hastily summoned to the man, who was dying, and immediately requested Mr. Tomes, the house-surgeon, to use the trocar, for the purpose of relieving the larynx. He did so very skilfully. The man instantly whispered, 'It is all right now.' He never had had an untoward symptom, and he left the hospital to follow his employment, which he continued to do until the early part of last winter [1848?], when he returned to us with all the evidences of rapid tubercular softening in the lungs, and died in the course of three weeks after admission. The larynx is now in the hospital museum, and exhibits these peculiar warty excrescences on its edges, for which disease so many of these cases have demanded the timely aid of the surgeon." (p. 68.)

Dr. Corfe observes, that it is in adults that the operation of laryngotomy is the most successful, Of 18 cases operated on for chronic disease of the larynx, 3 only were not substantially relieved, and 2 of these were examples of concerous degeneration around the larynx. The remaining 15 survived for months, and even years,—the shortest period being four months. On the other hand, of 12 or 15 cases of laryngotomy in children, there was not a single instance where life was prolonged beyond a few days. Eighteen cases of chronic disease of the larynx, treated by laryngotomy, are tabulated by Dr. Corfe.

The use of *elaterium in dropsies* is discussed by Dr. Corfe, and we have some useful remarks on the class of cases in which it is or is not admissible. In dropsy supervening upon "simple cardiac disease," it is not only contra-indicated, but is likely to be followed by serious and even fatal results; and the dropsical symptoms are aggravated rather than relieved. In renal dropsy, on the other hand, it is most useful; a form of disease in which the saline diuretics (so beneficial in dropsical effusion dependent on simple cardiac disease) are inadmissible. Dr. Corfe says, the evacuations produced by elaterium are always (?) from a gallon to twelve pints in quantity, and consist of pure serum, intermixed with numerous shreds of pale, lymph-like substance. The compound elaterium pill of the Middlesex Hospital (administered every other morning), is composed of elaterium, gr. ¼; gamboge, gr. iss; powdered capsicum, gr. ¼; soft extract of jalap, gr. iij. "A porter at our herbalist's in Covent Garden Market" recovered from a very formidable attack of renal dropsy after the free use of elaterium; and to it Dr. Corfe piously attributes the cure, "as a means in the hand of God."

Acute peritonitis of a hopeless character was successfully treated by large doses of calomel and opium,—twelve grains of the former and four of the latter being placed on the patient's tongue. A case of impacted fæces in the colon was sent from Cumberland, to have the operation of ovariotomy performed, it being supposed to be a case of ovarian disease. After smart purgatives, enemata, and steel, and shower-baths, "the complete dispersion of the tumour ensued, in the form of a huge and dense mass of scybalæ and fetid evacuations."

The *use of the urethral bougie* as a counter-irritant is recommended by Dr. Corfe in cases of *sciatica* and rheumatic pains of the lower extremities. He says:

> "It is frequently observed that the most obstinate forms of sciatica or of lumbago and rheumatic pains and swellings of the plantar fascia, commonly termed gonorrhœal rheumatism, resist all the ordinary forms of treatment............When the introduction of an urethral bougie twice or three times a week will subdue the rheumatic swellings, and alleviate, nay, oftentimes completely remove, the disease in question.............It is by no means a necessary consequence to gonorrhœal rheumatism of the ankles and plantar fasciæ, or to an obstinate form of sciatica, that there should exist a urethral stricture; the counter-irritation produced by the frequent introduction of a bougie, even where no stricture exists, will oftentimes remove, in a few weeks, the most inveterate form of chronic rheumatism which has been under medical treatment for many months." (p. 132.)

We have already noticed Dr. Corfe's Essay on the Water of the Wolverton Artesian Well;* Dr. Corfe introduces the principal results of his inquiries into the matter at the close of his volume, though their connection with "The Physiognomy of Disease" is never once referred to; this evasion of his subject is, however, the rule rather than the exception, in Dr. Corfe's book.

We cannot close our notice of this work without some notice of the style which its author has thought proper to adopt; for it demonstrates that he is either an illiterate man, or culpably negligent of the most common rules of English grammar and composition. We incline to the former conclusion, from various internal evidences. The extracts we have given amply demonstrate the author's inability to write the English language correctly or intelligibly, although the reader is generally able to guess or infer his meaning. Sometimes, however, this is impossible. What can Dr. Corfe mean, when he asks a patient, "if she would think it a hardship to leave off tea, and drink cocoa-shells, boiled with Naples biscuits;" or when he tells us of a medical practitioner who "was glad to leave off tea and take to cocoa-shells"? According to his own statement, Dr. Corfe has not spent twelve hours, during the eighteen years he has been at the Middlesex, in reading any elementary work on medicine,

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Vol. III, p. 117.

preferring to be in the wards of the hospital, rather than to pore over the writings, however excellent, of a deceased author." This disinclination for study and for converse with the illustrious dead is always a distinguishing characteristic of illiterate but conceited practitioners, as well as the attempt to conceal their imperfect education and undisciplined nature under the plausible pretence of being "practical,"—an attempt made *ad nauseum* by Dr. Corfe.

As a necessary result of this imperfect training, we have a work professedly practical, loaded with irrelevant comments and crude theories. We subjoin an illustration of Dr. Corfe's style of theorising, so that our readers may judge whether we be at all too severe in our objections:

> "It has often suggested itself to my mind, that the spawn or embryo of scrofula is the produce of a syphilitic taint on the one hand, and the virus of unprotected small pox on the other. Variola was, there can be no doubt, the sore affliction with which Job was attacked, as we read, 'So went Satan forth from the presence of the Lord, and smote Job with sore boils from the sole of his foot unto his crown' (Job, ii, 7; Isaiah, i, 6); and the description given by modern writers of this fearful malady in the East, leaves no question as to its identity. The other scourge of mankind, which is the result of sin, namely, syphilis, is plainly noticed in the sacred Scriptures as one of the curses which mankind has entailed upon himself; and therefore the parent stock of the disease under consideration is as ancient, I believe, as is the fall of man from his pristine state of innocence and uprightness, into rebellion against God, his Creator, and into transgression against man, his neighbour. Thus, the grandsire of all evil and misery which has befallen the human race since that terrible event, is Sin, which was conceived in the womb of lust, and produced her hideous progeny. Well may we, therefore, take up the words of that pious author, and exclaim:
>
> 'O thou hideous monster, Sin,
> What frightful ills hast thou brought in!
> All creation groans with thee,
> Pregnant cause of misery!'" (p. 112.)

Thus, syphilis being noticed in Scripture, *therefore* Adam and Eve were poxed! and "that pious author" referred to, must, according to the construction of the sentence, be Sin, "the grandsire of all evil," &c.

Bad as this is in taste and science, it is not so offensive as the dedication of the work to the Duke of Northumberland, President of the Middlesex Hospital; and we can well imagine how that nobleman's cheeks tingled with shame at being so bespattered with canting flattery. The luxuriant adulation of the seventeenth century, when authors praised for a consideration, and the dedication was the only remunerative portion of the book, has been surpassed by Dr. Corfe. The fulsomeness of the flattery is rendered the more odious by being commingled with pious ejaculations and the noblest and finest quotations from the sacred writings. Addressing the Duke, Dr. Corfe writes, "May the King of Kings and Lord of Lords bless your Grace with health and true wisdom, to fill your responsible and princely station in the land. 'By me,' says the Lord Jehovah, 'kings reign and princes decree justice,'" &c. Dr. Corfe has his excuse for all his religious parade: "In these days of profanity on the one hand, and of hypocrisy, on the other, I consider that a man should speak plainly, that the principles which sway him may at once be known; and herein God must be magnified, since, of ourselves, we should shrink from the expression of religious influence, unless the Lord bestowed his powerful grace accordingly." The assertion of moral truth on all fitting occasions is incumbent on all men, and therefore on Dr. Corfe; but we do not see the necessity there is, that, while he glorifies God, he should glorify himself and the Duke of Northumberland.

It is due to Dr. Corfe, that the apology he offers for his illiterate style should accompany our strictures; we therefore subjoin it:

> "I have written by snatches, and often in moments when my mind was full of anxiety or hope as to the issue of many severe cases around me, together with the fulfillment of many duties, too minute to describe. Added to which, during the writing of these papers, the hospital was, for the most part, pulled down and rebuilt, and I had the honour to be consulted upon many improvements and alterations which were suggested, as well as upon those which were adopted from the suggestions of my own mind; for which, indeed His Grace the Noble Duke to whom this volume is dedicated, most condescendingly offered me his thanks in person, at the same time that he gave me, in the most obliging manner, the permission to dedicate it to himself. Under these circumstances, the indulgence of the reader is asked for, and it is now hoped that he has found the plain simplicity only of truth, robed in that language which best becomes a plain man and a Christian; and that the Lord, who gave the power of discernment, in whatever degree that power may be, may bless any aim, however feeble, which professes to have for its beginning, middle, and end the glory of Him in view, from whom every good and every perfect gift proceeds, is the fervent hope of his most unworthy servant." (p. 147.)

We ought to add, that the *alma mater* of this "most unworthy servant" is "the King's College and University of Aberdeen."

Art. X.

Views of Nature: or Contemplations on the Sublime Phenomena of Creation; with Scientific Illustrations. By Alexander von Humboldt. Translated from the German by E. C. Otte and Henry G. Bohn. With a Frontispiece, from a Sketch by the Author, a Fac-simile of his Hand-writing, and a comprehensive Index.—*London*, 1850. Post 8vo, pp. 452.

The history of this work is almost as remarkable as its contents. The first edition, published forty-six years ago, consisted of "a series of papers which originated in the presence of the noblest objects of nature,—on the Ocean,—in the forests of the Orinoco,—in the Savannahs of Venezuela,—and in the solitudes of the Peruvian and Mexican Mountains." Several detached fragments, written on the very spots which they described, were wrought into a whole; with an anxious endeavour, on the part of the gifted author, "to heighten the enjoyment of nature by vivid representations, and at the same time to increase, according to the present state of science, the reader's insight into the harmonious cooperation of forces." He was not insensible of the difficulties which oppose themselves to this æsthetic treatment of the grand scenes of Nature, the wonderful luxuriance of which can scarcely be expressed, but by the accumulation of separate images, such as disturbs the harmony and effect of a picture:

> "The combination of a literary and purely scientific aim, the desire to engage the imagination, and, at the same time, to enrich life with new ideas, by the increase of knowledge, render the due arrangement of the separate parts, and what is required as unity of composition, difficult of attainment."

It is not too much to affirm that there is no living writer, by whom a task of this kind could have been so well conceived and so admirably executed. There is certainly none, whose personal knowledge of the various aspects of nature can approach that of our octogenarian *savant;* and if we sometimes look for a little more of that vividness of delineation, which is the result of a higher artistic power than he possesses, we must not forget the advantage we derive from the contemplation of Nature in her sober garb of truth, instead of decked out in the embroiderings of the imagination.

The second edition of the Views of Nature was published in Paris in 1826. Two papers were then added; one on the structure and mode of action of Volcanoes; the other entitled "Vital Force, or the Rhodian Genius." The latter has a special interest for us, not merely on account of its subject, but on account of the little history which attaches to it, and which brings us into connexion with one of the illustrious minds of a generation that to men of ordinary age has long since passed away:—

> "Schiller," says our author, in remembrance of his youthful medical studies, "loved to converse with me, during my long stay at Jena, on physiological subjects. The inquiries in which I was then engaged, in preparing my work, 'On the condition of the Fibres of Nerves and Muscles, when irritated by contact with substances chemically opposed,' often imparted a more serious direction to our conversation. It was at this period that I wrote the little allegory on Vital Force, called the Rhodian Genius. The predilection which Schiller entertained for this piece, and which he admitted into his periodical, *Die Horen*, gave me courage to introduce it here."

The third edition, prepared by Baron Humboldt in his eightieth year, has been entirely remoulded in accordance with his own more extended information, and the scientific demands of the age:

> "I have indulged the hope," he says, "of stimulating the study of nature, by compressing into the smallest possible compass the numerous results of careful investigation on a variety of interesting subjects, with a view of showing the importance of accurate numerical data, and the necessity of comparing them with each other, as well as to check the dogmatic smattering and fashionable scepticism which have too long prevailed in the so-called higher classes of society."

In the interval between the second and third editions, Baron Humboldt had visited Northern Asia, in company with Ehrenberg and Gustavus Rose; and this expedition, he tells us, contributed to the enlargement of his views in all that concerns the formation of the earth's surface, the direction of mountain-chains, the connexion of the Steppes and Deserts, and the geographical distribution of plants according to ascertained influences of temperature. The fruits of this extension are amply displayed in the original essays; but still more in the notes and illustrations, which supply a vast mass of details upon points that are only glanced at in the text, and embody the latest information which is accessible, upon a variety of topics of great interest. It is indeed wonderful to see a man of eighty years of age, whose mind might be supposed to have attained that full development in which further progress is not to be expected, as eager for novelty as if he were just starting upon his travels in the vigour of youth; and displaying all that aptidude of reception, and that philosophical discrimination, which are the special characteristics of the matured yet still fresh intellect of the prime of manhood. And it must be most gratifying to him to witness the gradual development of the science which he may almost be said to have called into being,—that of Physical Geography, in its connexion, on the one hand, with the geological structure which determines the surface-character of the land, and, on the other, with the various forms of organic life which this sustains.

The amplification of the "Illustrations," beyond all proportion to the augmentation of the Essays themselves, has given a curious character to the contents of this volume; for out of the 436 pages of which it is composed (independently of the summary of contents, index, &c.) no more than 135 are occupied by what may be called the *text*, the remaining being taken up with the *notes*, some of which are longer than almost any one of the original essays. The principal part of the work is therefore quite fragmentary in its character; the only connexion between the mass of miscellaneous facts of which it is made up, being that afforded by the slender stem on which they all depend. Hence the book is by no means a pleasant one to read through at once, and we cannot recommend any of our readers to make the attempt. It should rather, in fact, serve as the *pièce de résistance* of a good many separate meals; each essay, with its "illustrations" being sufficient to stay a reasonably good digestion for some time. In the 'Kosmos,' every fact was kept in subordination to one grand idea; the evolution of principles, rather than the accumulation of details, was the writer's constant object; and so skilfully were the latter introduced, that they served but to afford the colour and substance to the majestic outlines which had been sketched in by his master hand. Here, on the contrary, it is in the essays alone that any semblance of artistic "keeping" is preserved; and whilst the "Views" which they present may be studied and re-studied, as we should look at a panoramic representation, we turn to the Illustrations, as to a *catalogue raisennée* of the objects we have been viewing, in which their names, descriptions, dimensions, &c., are duly set forth in the most prosaic style, ~~and with~~ matter-of-fact precision. The amount of information contained in the volume is very great, and the accuracy with which it is digested and presented to the reader, may of course be relied on; we can only regret that the mode in which the book has grown into its present form should have made it so little readable as a continuous whole.—We shall attempt, however, to convey some idea of the nature of its contents; and commencing with the first essay, *On Steppes and Deserts*, shall quote the beautiful passage with which it opens:

> "At the foot of the lofty granitic range, which, in the early age of our planet, resisted the irruption of the waters on the formation of the Caribbean Gulf, extends a vast and boundless plain. When the traveller turns from the Alpine valleys of Caracas, and the island-studded lake of Tacarigua, whose waters reflect the forms of the neighbouring bananas,—when he leaves the fields, verdant with the light and tender green of the Tahitian sugar-cane, or the sombre shade of the cacoa groves,—his eye rests in the south on Steppes, whose seeming elevations disappear in the distant horizon.
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> "From the rich luxuriance of organic life, the astonished traveller suddenly finds himself on the dreary margin of a treeless waste. Nor hill, nor cliff rears its head, like an island in the ocean, above the boundless plain: only here and there, broken strata of floetz, extending over a surface of two hundred square miles (more than three thousand English square miles), appear sensibly higher than the surrounding district. The natives term them *banks*, as if the spirit of language would convey

some record of that ancient condition of the world, when these elevations formed the shoals, and the Steppes themselves the bottom, of some vast inland sea.

> "Even now, illusion often recalls, in the obscurity of night, these images of a former age. For when the guiding constellations illumine the margin of the plain with their rapidly rising and setting beams, or when their flickering forms are reflected in the lower stratum of undulating vapour, a shoreless ocean seems spread before us. Like a limitless expanse of waters, the Steppe fills the mind with a sense of the infinite, and the soul, freed from the sensuous impressions of space, expands with spiritual emotions of a higher order. But the aspect of the ocean, its bright surface diversified with rippling or gently swelling waves, is productive of pleasurable sensations,—while the Steppe lies stretched before us, cold and monotonous, like the naked stony crust of some desolate planet." (pp. 1-2.)

"In all latitudes," continues our author, "nature presents the phenomenon of these vast plains; and each has some peculiar character or physiognomy determined by diversity of soil and climate, and by elevation above the level of the sea." In Northern Europe, however, these are only represented by the heathy plains, of comparatively inconsiderable extent, extending from the extremity of Jutland to the mouth of the Scheldt. The vasts deserts of the interior of Africa, covering an area nearly three times as great as that of the Mediterranean, may be regarded as a sea of sand, separating fruitful regions from each other, or inclosing them like islands; there is probably no part of the world, save the immediate neighbourhood of the poles, which is so absolutely sterile; and the explanation of this is to be found in the fact, that "neither dew nor rain refreshes these barren wastes, or unfold the germs of vegetation within the glowing depths of the earth, for everywhere rising columns of hot air dissolve the vapours and disperse the passing clouds." Wherever springs burst forth, however, a carpet of verdure is thickly spread around them; the wild animals of the desert frequent their neighbourhood; and nomadic tribes of men descended from the ancient Libyans make these oases their temporary home. The remainder of the great desert, however, is uninhabitable by man, because it affords him neither food nor water; yet "on tracks whose undeviating course was determined by commercial intercourse thousands of years ago, the long line of caravans passes from Tafilet to Timbuctoo, or from Mourzouk to Bornou,—daring enterprises, the practicability of which depends on the existence of the camel, the 'ship of the desert.'" The great steppes of Central Asia, extending almost continuously in some directions over nearly three thousand miles, present a striking contrast to the arid plains of Central Africa. The difference in their geographical and geognostical position involves a vast difference in their capability of sustaining organic life; and we find some of them covered with grass, others with succulent evergreen, articulated, alkaline plants; others with flowering plants, of loftier stature, closely crowded together; and others, again, adorned with lowly but luxuriant white-blossomed shrubs; while many, on the other hand, are radiant with the effulgence of lichen-like tufts of salt, scattered irregularly over the clayey soil like newly-fallen snow.

> "These Mongolian and Tartar Steppes, which are intersected by numerous mountain chains, separate the ancient and long-civilized races of Thibet and Hindostan from the rude nations of Northern Asia. They have also exerted a manifold influence on the changing destinies of mankind. They have inclined the current of population southward, impeded the intercourse of nations, more than

the Himalayas, or the Snowy Mountains of Sirinagur and Gorka, and placed permanent limits to the progress of civilization and refinement in a northerly direction.

"History cannot, however, regard the plains of Central Asia under the character of obstructive barriers alone. They have frequently proved the means of spreading misery and devastation over the face of the earth. Some of the pastoral tribes inhabiting this Steppe,—the Mongols, Getæ, Alani, and Usüni,—have convulsed the world. If in the course of earlier ages, the dawn of civilization spread like the vivifying light of the sun from east to west; so in subsequent ages, and from the same quarter have barbarism and rudeness threatened to overcloud Europe." (pp. 4-5.)

From the salt-steppes of Asia,—from the European heaths, smiling in summer with their scarlet, honey-yielding flowers,—and from the barren deserts of Africa, we return with our author to the plains of South America; the interest afforded by the contemplation of which must arise from a pure love of nature.

"No oasis here reminds the traveller of former inhabitants, no hewn stone, no fruit-tree once cultivated and now growing wild, bears witness to the industry of past races. As if a stranger to the destinies of mankind, and bound to present alone, this region of the earth presents a wild domain to the free manifestation of animal and vegetable life." (p. 6.)

This steppe incloses an area of 256,000 geographical miles, and occupies, with some interruptions, the central band of South America, from the equatorial region nearly to its southern extremity. The Llanos, which from its northern or equatorial portion, repeat in a very remarkable manner the characters both of their African and their Asiatic prototypes. "Twice in every year they change their whole aspect; during one half of it appearing waste and barren, like the Libyan desert; during the other, covered with verdure, like many of the elevated steppes of Central Asia." The southern portion of the great South American steppe possesses a climate which presents a striking contrast, in point of humidity and coolness, with that of Africa; and on this condition, taken in connexion with its marked difference of mineral character (involving, of course, a corresponding difference of soil), depend that luxuriant and exuberant vegetation, and that richness of foliage, which are so peculiarly characteristic of the New Continent. Into Humboldt's lucid explanation of the causes of this climatic difference, we have not space to follow him; but shall simply observe that he first showed that they *are* explicable on simple physical principles, thus putting an end to those "geographical myths," as he aptly terms them, which sought to refer them to past events, instead of to the existing conditions of the two continents respectively.

The effect of the physical aspect of the South American steppe upon the distribution of animal life, and of the human race, is then graphically sketched:

"Although the South American steppe is covered with a thin crust of fruitful earth, is periodically refreshed by rains, and adorned with luxuriant herbage, its attractions were not sufficient to induce the neighbouring nations to exchange the beautiful mountain valleys of Caracas, the sea-girt districts, and the richly-watered plains of the Orinoco, for this treeless and springless desert. Hence on the arrival of the first European and African settlers, the steppe was found to be almost without inhabitants. The Llanos are, it is true, adapted for the breeding of cattle, but the primitive inhabitants of the new continent were almost wholly unacquainted with the management of animals yielding milk. Scarcely one of the American tribes knew how to avail themselves of the advantages which Nature, in this respect, had placed before them. The American aborigines, who, from 65° north latitude to 55° south latitude, constitute (with the exception, perhaps, of the Esquimaux) but one sole race, passed directly from a hunting to an agricultural life, without going through the intermediate stage of a pastoral life." (pp. 10-11)

It is curious that the use of milk and cheese, like the possession and culture of the cerealia, should have been originally restricted (with the exception of maize) to the Old World, in almost every region of which nations may be found who cultivate some kind of corn and rear milch cattle. And it would seem to be to the ignorance of this mode of life, among the primitive races of America, that we must attribute the original scantiness of human population which characterised the steppe. But this circumstance allowed freer scope for the development of the most varied forms of animal life. Agoutis, small spotted antelopes, the shielded armadillo (which, rat-like, terrifies the hare in its subterranean retreat), herds of the slothful chiguire (a large semi-aquatic rodent, known to European naturalists as the *capybara*, which is pursued in the water by the crocodile, and on land by the tiger or jaguar, and which runs so badly that it may be caught by the hands), beautifully striped viverræ, whose pestilential odour infects the air, the great maneless lion, the variegated jaguar (commonly known as the tiger) whose strength enables it to drag to the summit of a hill the body of the young bull it has slain,—these, and many other forms of animal life, roam over the treeless plain. Unable, through their ignorance of the art of culture, to turn the rich pastures to useful account, and indisposed to the use of animal flesh as food, the nomadic hordes who first chose this region as their place of settlement, became dependent upon the fan-palms (Mauritia) scattered over it; these trees becoming to them all, or yet more than all, that the date-palm is to the Arab, or the cocoa-nut palm to the Polynesian islander. The unsubdued tribe of Guaranes, who inhabit the marshy plains in the neighbourhood of the mouths of the Orinoco, build their huts on horizontal platforms supported by the stumps of felled palm-trees; and when the Delta is completely overflowed, they live almost entirely in spreading mats or hammocks, woven of the leaf-stalk of the mauritia, which they suspend from tree to tree.

"The mauratia not only affords a secure habitation, but likewise yields numerous articles of food. Before the tender spathe unfolds its blossoms on the male palm, and only at that peculiar period of vegetable metamorphosis, the medullary portion of the trunk is found to contain a sago-like meal, which, like that or the jatropha root, is dried in thin bread-like slices. The sap of the tree, when fermented, constitutes the sweet inebriating palm-wine of the Guaranes. The narrow-scaled fruit, which resembles reddish pine-cones, yields, like the banana and almost all tropical fruits, different articles of food, according to the periods at which it is gathered, whether its saccharine properties are fully matured, or whether it is still in a farinaceous condition. Thus, in the lowest grades of man's development, we find the existence of an entire race dependent upon almost a single tree; like certain insects which are confined to particular portions of a flower." (p. 13.)

The introduction of the domesticated quadrupeds of the Old World, however, has effected a great change in the distribution of the human population of the great South American steppe. Everywhere throughout these vast districts, the inhabitants have begun to rear cattle; whilst, here and there, towns have sprung up on the banks of the steppe-rivers, which open lines of communication between the sea-board and the interior. The vast multiplication of the races of quadrupeds carried thither by the first European colonists, in spite of the numerous perils with which they have to contend, and the modifications in physical and psychical constitution which they have undergone, in the course of the three centuries and a half which have elapsed since their introduction, and phenomena of the highest interest to the philosophic naturalist, and more especially to the anthropologist; since they demonstrate the striking changes which may be impressed on a race, within a few generations, by the continued influence of the same modifying agency. To these, however, our author does not here advert; his object being to portray the most remarkable features of the country through which these animals are now so universally diffused. Of these he gives us two very striking pictures; the first of which, relating to the period of drought, we shall quote without abridgment; of the second, which describes the access of rainy season, a part will suffice:

"When, beneath the vertical rays of the bright and cloudless sun of the tropics, the parched sward crumbles into dust, then the indurated soil cracks and bursts as if rent asunder by some mighty earthquake. And if, at such a time, two opposite currents of air, by conflict moving in rapid gyrations, come in contact with the earth, a singular spectacle presents itself. Like funnel-shaped clouds, their apexes touching the earth, the sands rise in vapoury form through the rarified air in the electrically charged centre of the whirling current, sweeping on like the rushing waterspout, which strikes such terror into the heart of the mariner. A dim and sallow light gleams from the lowering sky over the dreary plain. The horizon suddenly contracts, and the heart of the traveller sinks with dismay as the wide steppe seems to close upon him on all sides. The hot and dusty earth forms a cloudy veil which shrouds the heavens from view, and increases the stifling oppression of the atmosphere; while the east wind, when it blows over the long-heated soil, instead of cooling, adds to the burning glow.

"Gradually, too, the pools of water, which had been protected from evaporation by the now seared foliage of the fan-palm, disappear. As in the icy north animals become torpid from cold, so here the crocodile and boa-constrictor lie wrapt in unbroken sleep, deeply buried in the dried soil. Everywhere the drought announces death, yet everywhere the thirsty wanderer is deluded by the phantom of a moving, undulating, wintery surface, created by the deceptive play of the reflected rays of light, the mirage. A narrow stratum separates the ground from the distant palm-trees, which seem to hover aloft, owing to the contact of currents of air, having different degrees of heat and therefore of density. Shrouded in dark clouds of dust, and tortured by hunger and burning thirst, oxen and horses scour the plain, the one bellowing dismally, the other with outstretched necks snuffing the wind, in the endeavour to detect, by the moisture in the air, the vicinity of some pool of water not yet wholly evaporated.

"The mule, more cautious and cunning, adopts another method of allaying his thirst. There is a globular and articulated plant, the melocactus, which incloses under its prickly integument an aqueous pulp. After carefully striking away the prickles with his forefeet, the mule cautiously ventures to apply his lips to imbibe the cooling thistle juice. But the draught from this living vegetable spring is not always unattended by danger, and these animals are often observed to have been lamed by the puncture of the cactus thorn.

"Even if the burning heat of day be succeeded by the cool freshness of the night, here always of equal length, the wearied ox and horse enjoy no repose. Huge bats now attack the animals during sleep, and vampyre-like suck their blood; or fastening on their backs, raise festering wounds, in which mosquitoes, hippoboeces, and a host of other stinging insects, burrow and nestle. Such is the miserable existence of these poor animals when the heat of the sun has absorbed the waters from the surface of the earth." (pp. 14-16.)

When, after a long drought, the genial season of rain arrives, the scene suddenly changes. The deep azure of the hitherto cloudless sky assumes a lighter hue; some of the fainter celestial phenomena can no longer be distinguished; and the brightest stars shine with a flickering and less planetary light. Like some distant mountain, a single cloud "about the bigness of a man's hand" is seen rising perpendicularly on the southern horizon,—a sign, as to the prophet of old, of abundance of rain. Misty vapours collect and gradually overspread the heavens: while distant thunder proclaims the approach of the vivifying discharge. Then from all Nature bursts forth the jubilant chorus, "Thanks be to God, who laveth the thirsty land," words which will be rendered immortal by the sublime music to which they have been united by the greatest composer of our day, now, alas! no more.* But the chorus of Nature is not unmingled with strains that seem to us discordant.

> "Scarcely is the surface of the earth moistened, before the teeming steppe becomes covered with kyllingiæ, with the many-panacled paspalum, and a variety of grasses. Excited by the power of light, the herbaceous mimosa unfolds its dormant, drooping leaves, hailing, as it were, the rising sun in chorus with the matin song of the birds and the opening flowers of aquatics. Horses and oxen, buoyant with life and enjoyment, roam over and crop the plains. The luxuriant grass hides the beautifully spotted jaguar, who, lurking in safe concealment, and carefully measuring the extent of the leap, darts, like the Asiatic tiger, with a cat-like bound on his passing prey.
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> "At times, according to the account of the natives, the humid clay on the banks of the morasses is seen to rise slowly in broad flakes. Accompanied by a violent noise, as on the eruption of a small mud-volcano, the upheaved earth is hurled high into the air. Those who are familiar with the phenomena fly from it; for a colossal water-snake, or a mailed and scaly crocodile, awakened from its trance by the first fall of rain, is about to burst from his tomb
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> "When the rivers bounding the plain to the south, as the Arauca, the Apure, and the Payara, gradually overflow their banks, Nature compels those creatures to live as amphibious animals, which, during the first half of the year, were perishing with thirst on the waterless and dusty plain. A part of the steppe now presents the appearance of a vast inland sea. The mares retreat with their foals to the higher banks, which project, like islands, above the spreading waters. Day by day the dry surface diminishes in extent. The cattle, crowded together, and deprived of pasturage, swim for hours about the inundated plain, seeking a scanty nourishment from the flowering panicles of the grasses which rise above the lurid and bubbling waters. Many foals are drowned, many are seized by crocodiles, crushed by their serrated tails, and devoured. Horses and oxen may not unfrequently be seen, which have escaped from the fury of this bloodthirsty and gigantic lizard, bearing on their legs the marks of its pointed teeth.". (pp. 16-17.)

It is not among the least remarkable consequences of the diffusion of the domesticated quadrupeds under the influence of man, that they are brought into relation in different regions, with a wonderful variety of animal and vegetable forms. "In the one region the northern birch, in the other the date-palm, protects the wearied ox from the noonday sun. The same species of animal which contends in eastern Europe with bears and wolves, is exposed, in a different latitude, to the attacks of tigers and crocodiles." Among the enemies of the South American horse, the gymnotus is not the least formidable; and the vivid picture which our author has elsewhere given of the remarkable contest between the horses and the fish, is doubtless known to most of our readers. The essay concludes with a brief notice of the condition of the human population inhabiting the borders of the steppes, and especially of that which is dispersed through the marshy plains of Guiana, between the rivers Orinoco and Amazon, and with some beautiful reflections suggested thereby :

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* Reference is here made to the magnificient chorus which closes the first part of the oratorio of Elijah, certainly one of the finest pieces of descriptive music ever written.

> "In this grand and wild condition of Nature dwelt numerous races of men. Separated by a remarkable diversity of languages, some are nomadic, unacquainted with agriculture, and living on ants, gums, and earth, mere outcasts of humanity, such as the Ottomaks and Jarures; others, for instance the Maquiritares and Macos, have settled habitations, live on fruits cultivated by themselves, are intelligent, and of gentler manners. Extensive tracts between the Cassiquarie and the Atabapo are inhabited solely by the tapir and social apes; not by man. Figures graven on the rocks attest that even these deserts were once the seat of a higher civilization. They bear testimony, as do also the unequally developed and varying languages (which are amongst the oldest and most imperishable of the historical records of man,) to the changing destinies of nations.
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> "While on the steppe tigers and crocodiles contend with horses and cattle, so on the forest borders, and in the wilds of Guiana the hand of man is ever raised against his fellow-man. With revolting eagerness, some tribes drink the flowing blood of their foes, whilst others, seemingly unarmed yet prepared for murder, deal certain death with a poisoned thumb-nail. The feebler tribes, when they tread the sandy shores, carefully efface with their hands the traces of their trembling steps.
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> "Thus does man, everywhere alike, on the lowest scale of brutish debasement and in the false glitter of his higher culture, perpetually create for himself a life of care. And thus, too, the traveller, wandering over the wide world by sea and land, and the historian who searches the records of bygone ages, are everywhere met by the unvarying and melancholy spectacle of man opposed to man.
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> "He, therefore, who amid the discordant strife of nations, would seek intellectual repose, turns with delight to contemplate the silent life of plants, and to study the hidden forces of Nature in her sacred sanctuaries; or yielding to that inherent impulse, which for thousands of years have glowed in the breast of man, directs his mind, by a mysterious presentiment of his destiny, towards the celestial orbs, which, in undisturbed harmony, pursue their ancient and eternal course." (pp. 20-1.)

From among the "Illustrations" of this Essay we shall glean a few facts which will, we think, be of interest to our readers.—A considerable space is devoted to the discussion of the relative heights of the mountain summits of the Old and the New World. Most of our readers will recollect the time when Chimborazo was reputed to be the peak of highest elevation, not only in the range of the Cordilleras, but in the known world. Some thirty years ago, however, it began to be reported in Europe that there are much higher summits in the Himalayan chain than in the Cordilleras; and this was subsequently verified by actual measurement. The height of Chimborazo as trignometrically measured by Humboldt, is 21,442 feet; whilst that of Djwahir has been ascertained to be 26,902 feet, that of Cinjinga, 28,174 feet, and that of Dhawalagiri still greater. It was asserted in 1838, however, by Pentland, that there are summits in the Andes considerably higher than

Chimborazo, and almost rivalling the Himalayan peaks; but he has recently, by a correction of his calculations, considerably reduced the highest of these elevations, and he now gives as the height of the Sorata, 21,286 feet, and of the Illimani 21,145 feet; still, however, ascribing an elevation of from 21,700 to 22,350 feet, to four summits of the western Cordilleras. All these, however, are surpassed by the volcanic Aconcagua, to the north east of Valparaiso; the height of which, according to the latest calculations, is 23,906 feet. The difference of elevation between the highest summits of the Old and New Continents, therefore, still remains more than 4000 feet in favour of the latter.—The difference in the height of the *snow-line* is a yet more remarkable phenomenon. Although, when it was first reported that fine corn-fields and fertile pasture-lands had been seen in the passes and on the plateaux of the Himalaya, at an elevation far exceeding the height of Mont Blanc, the announcement was received with incredulity; it has been fully confirmed by subsequent observations. A great part of these Alpine plains would lie buried through the whole year in snow and ice, were it not for a combination of circumstances which causes the snow-line to be elevated much above the level at which the latitude of this mountain-chain would lead us to expect it; and the most remarkable proof of the existence of local influences is found in the fact, that the snow-line is much more elevated on the northern than on the southern declivity, but for which peculiarity of the distribution of heat in the upper strata of the atmosphere, the mountain-plain of Western Thibet would be rendered uninhabitable for the millions of men who now occupy it. The mean height of the snow-lines on the northern and southern declivities respectively, were stated by Humboldt, in his 'Asie Centrale,' at 16,626 feet for the northern declivity, and 12,981 feet for the southern; giving a mean difference of 3645 feet. The following, however, are the results of the observations of Lieut. Strachey, as contained in a long extract from a recent memoir by that gentleman in the 'Journal of the Asiatic Society of Bengal,' which is appended by the editor of this translation.

> "The snow-line or the southern edge of the belt of perpetual snow in this portion of the Himalaya is at an elevation of 15,000 feet, while on the northern edge it reaches 18,500 feet; and on the mountains to the north of the Sutlej, or still further, it recedes even beyond 19,000 feet. The greater elevation which the snow-line attains on the northern edge of the belt of perpetual snow is a phenomenon not confined to the Thibetian declivity alone, but extending far into the interior of the chain; and it appears to be caused by the quantity of snow that falls on the northern portion of the mountains being much less than that which falls farther to the south along the line where the peaks, covered with perpetual snow, first rise above the less elevated ranges of the Himalaya." (p. 80.)

It will be seen that the difference in favour of the northern declivity remains the same, although the actual height of the snow-line is raised by Lieut. Strachey's observations about 2000 feet. The source of the error of former observers is considered by Lieut. Strachey to lie partly in their want of distinction between snow and glacier-ice, and partly to their having looked for the boundary of perpetual snow at the beginning of the spring, instead of at the beginning of winter, when its elevation is the greatest. The greater elevation of the snow-line on the northern declivity is attributed by Humboldt chiefly to the force of the heat radiated from the Thibetian plains; whilst the constant serenity of the sky, the dryness of the atmosphere and consequently rare formation of snow, and the powerful solar heat peculiar to the eastern continental climate, keep the snow-line, even on the southern declivity, at a much higher altitude than that which it possesses on the Cordilleras, where the opposite conditions prevail. The immediate neighbourhood of the sea, on one side of that range, contributes to reduce its mean temperature; and this is still further kept down by the influence of the vegetation, both herbaceous and arboreal, which thickly clothes a large proportion of the interior of the South American continent. The grassy and cyperaceous plants which cover the Llanos of Venzuela and the Pampas of Buenos Ayres, must exert an important cooling influence, in virtue of their extraordinary power of emitting heat, long since demonstrated by Wells and Daniell to exist even in this climate, notwithstanding its inferior degree of transparency. The following extract details our author's views respecting a point of great practical importance, the influence of forest regions on the temperature of a country:

> "The forest region acts in a threefold manner, by the coolness induced by its shade, by evaporation, and by the cooling process of radiation. Forests uniformly composed in our temperate zone of "social plants belonging to the families of the Coniferæ or Amentaceæ (the oak, beech, and birch), and under the tropics composed of plants not living socially, protect the ground from direct isolation, evaporate the fluids they have themselves produced, and cool the contiguous strata of air by the radiation of heat from their leafy appendicular organs. The leaves are by no means all parallel to one another, and present different inclinations towards the horizon; and according to the laws established by Leslie and Fourier, the influence of this inclination on the quantity of heat emitted by radiation is such, that the radiating power of a given measured surface *a*, having a given oblique direction, is equal to the radiating power of a leaf of the size of *a* projected on a horizontal plane. In the initial condition of radiation of all the leaves which form the summit of a tree, and which partially cover each other, those which are directly presented towards the enclouded sky, will be first cooled.
>
> "This production of cold (or the exhaustion of heat by emission) will be the more considerable in proportion to the thinness of the leaves. A second stratum of leaves has its upper surface turned to the under surface of the former, and will give out more heat by radiation towards that stratum than it can receive from it. The result of this unequal exchange will then be a diminution of temperature for the second stratum also. A similar action will extend from stratum to stratum, till all the leaves of the tree, by their greater or less radiation, as modified by their difference of position, have passed into a condition of stable equilibrium, of which the law may be deduced by mathematical analysis. In this manner, in the serene and long nights of the equinoctial zone, the forest air, which is contained in the interstices between the strata of leaves, becomes cooled by the process of radiation; for a tree, a horizontal section of whose summit would hardly measure 2000 square feet, would, in consequence of the great number of its appendicular organs (the leaves), produce as great a diminution in the temperature of the air as a space of bare land or turf many thousand times greater than 200 square feet. I have thus sought to develop somewhat fully the complicated relations which the action of great forest regions exerts on the atmosphere, because they have so often been touched upon in connexion with the important question of the climate of ancient Germany and Gaul." (pp. 98, 99.)

When speaking, in his original Essay, of the dispersion of the human races along the western coast of America, our author throws out the suggestion that other migrations may have taken place from the eastern part of the Asiatic continent, besides that (across Behring's Straits) which is usually regarded as having been the primal source of the American population; and in a note to this passage he carries out this idea more fully. In his work on the Monuments of the American Primitive Races, he had essayed to prove, by a comparative examination of the Mexican and Thibetian-Japanese calendars, by a correct determination of the position of the scansile pyramids, and by the evidence of tradition, that the western nations of the New Continent maintained relations of intercourse with those of Eastern Asia, long before the arrival of the Spaniards. These observations have subsequently derived additional weight from the discovery of architectural remains in Central America. which indicate a yet higher degree of civilization to have prevailed in that region, and a yet closer conformity to Old World types, than has been elsewhere seen. On these grounds, continues our author,—

> "I regard the existence of a former intercourse between the people of Western America and those of Eastern Asia as more than probable, although it is impossible at the present time to say by what route and with which of the tribes of Asia this intercourse was established. A small number of individuals of the cultivated hierarchical castes may perhaps have sufficed to effect great changes in the social condition of Western America. The fabulous accounts formerly current regarding Chinese expeditions to the New Continent, refer merely to expeditions to Fusang or Japan. It is, however, possible that Japanese and Siam-Pi may have been driven by storms from the Corea to the American coasts. We know as matters of history that Bonzes and other adventurers navigated the Eastern Chinese seas in search of a remedial agent capable of making man immortal. Thus under Tschin-chi-huang-ti three hundred young couples were dispatched to Japan in the year 209 before our era, who, instead of returning to China, settled on the Island of Nipon. May not accident have led to similar expeditions to the Fox Islands, to Alaschka or New California? As the western coasts of the American continent incline from north-west to south-east, and the eastern coasts of Asia from north-east to south-west, the distance between the two continents in the milder zone, which is most conducive to mental development (45° lat.). would appear too considerable to admit of an accidental settlement having been made in this latitude. We must therefore assume that the first landing took place in the ungenial climate of 55° and 65°, and that cultivation, like the general advance of population in America, progressed by gradual stations from north to south. It was even believed in the beginning of the sixteenth century, that fragments of ships from Catayo, i. e. from Japan to China, had been found on the coasts of the Northern Dorado, called also Quivira and Cibora.
>
> "We know as yet too little of the language of America entirely to renounce the hope that, amid their many varieties, some idiom may be discovered, that has been spoken with certain modifications in the interior of South America and Central Asia, or that might at least indicate an ancient affinity. Such a discovery would undoubtedly be one of the most brilliant to which the history of the human race can hope to attain! But analogies of language are only deserving of confidence where mere resemblances of sound in the roots are not alone the object of research, but attention is also directed to the organic structure, the grammatical forms, and those elements of language which manifest themselves as the product of the intellectual power of man." (pp. 132-3.)

In the second essay, on *The Cataract of the Orinoco*, our author confining himself to a more limited circle of phenomena, aims at portraying in brighter tints the cheerful picture of a luxuriant vegetation, and fluvial valleys with their foaming mountain torrents. We shall not attempt, however, to follow him through his description; but shall limit ourselves to his account of the cavern of Ataruipe, the burial place of an Indian race, of which the people and the language are alike extinct. The surrounding scenery has a grand and solemn character, which accords well with the feelings excited by such a scene. The cave (which is properly not a cave but a vault formed by a far-projecting and overhanging cliff, which was obviously hollowed out beneath by the action of water) is situated on one side of a cauldron-shaped valley, bounded by precipitous granitic rocks, whose rounded summits bear huge granite boulders, measuring from forty to more than fifty feet in diameter; and appearing to be so poised on a single point of their surface, that the slightest trembling of the earth would hurl them down. From the summit of one of these, the foaming bed of the river is seen in the distance, with hills richly crowned with woods rising from its banks; while beyond its western bank, the eye rests on the boundless Savannah of the Meta. On the horizon, the mountains of Uniama loom like threatening clouds; whilst in the deep ravines of the valley beneath, no living thing moves, save where the vulture and the whirring goat-sucker wing their lonely way, their heavy shadows passing fitfully across the face of the barren rock. Of the cemetery itself, the following description is given; and with the reflections suggested by it, the essay is brought to a conclusion:

> "We counted about six hundred well-preserved skeletons, placed in as many baskets, formed of the stalks of palm-leaves. These baskets, called by the Indians *mapires*, are a kind of square sack varying in size according to the age of the deceased. Even new-born children have each their own mapire. These skeletons are so perfect, that not a rib or a finger is wanting.
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> "The bones are prepared in three different ways: some are bleached, some dyed red with onoto, the pigment of the *Bixa Orellana;* others, like mummies, are anointed with fragrant resin and wrapped in banana leaves.
>
> "The Indians assured me that the corpse was buried during several months in a moist earth, which gradually destroyed the flesh; and that after being disinterred, any particles of flesh still adhering to the bones were scraped off with sharp stones. This practice is still continued among many tribes of Guiana. Besides these baskets or mapires, we saw many urns of half-burnt clay, which appear to contain the bones of whole families. The largest of these urns are upwards of three feet in heighth and nearly six feet in length, of an elegant oval form, and greenish colour; with handles shaped like crocodiles and serpents, and the rims bordered with flowing scrolls and labyrinthine figures. These ornaments are precisely similar to those which cover the walls of the Mexican palace at Mitla. They are found in every clime and every stage of human culture,—among the Greeks and Romans, no less than on the shields of Otaheitans, and other South Sea islanders,—in all regions where a rhythmical repetition of regular form delights the eye. The causes of these resemblances, as I have explained elsewhere, are rather to be referred to psychical conditions, and to the inner nature of our mental qualifications, than as affording evidence in favour of a common origin and the ancient intercourse of nations.
>
> "Our interpreters could give us no certain information regarding the age of these vessels; but that of the skeletons did not in general appear to exceed a hundred years. There is a legend amongst the Guareke Indians, that the brave Atures, when closely pursued by the cannibal Caribs, took refuge on the rocks of the cataracts,—a mournful place of abode, in which this oppressed race perished, together with its language! In the most inaccessible portion of the Raudal, other graves, of the same character, are met with; indeed, it is probable that the last descendants of the Atures did not become extinct until a much more recent period. There still lives, and it is a singular fact, an old parrot, in Maypures, which cannot be understood, because, as the natives assert, it speaks the language of the Atures!...........

"We turned from the grave of a departed race with feelings of deep emotion. It was one of those clear and deliciously cool nights, so frequent beneath the tropics. The moon stood high in the zenith, encircled by a halo of coloured rings, her rays gilding the margins of the mist, which, in well-defined outline, hovered like clouds above the foaming flood. Innumerable insects poured their red phosphoresent light over the herb-covered surface, which glowed with living fire. as though the starry canopy of heaven had sunk upon the grassy plain. Climbing Bignonias, fragrant Vanillas, and golden flowered Banisterias adorned the entrance of the cave, while the rustling palm-leaves waved over the resting-place of the dead.

"Thus pass away the generations of men!—thus perish the records of the glory of nations! Yet, when every emanation of the human mind has faded—when, in the storms of time, the monuments of man's creative art are scattered to the dust—an ever new life springs from the bosom of the earth. Unceasingly prolific Nature unfolds her germs,—regardless though sinful man, even at war with himself, tramples beneath his foot the ripening fruit!" (171-3.)

The third Essay, on *The Nocturnal Life of Animals in the Primeval Forest,* chiefly consists of passages from the author's journal, descriptive of the scenes which he actually witnessed; and this "plain unvarnished tale" is to us far more picturesque than it could be rendered by the most elaborate amplification. Thus, he tells us that, in ascending the river Orinoco, the bed of the river contracted in one part to less than 1000 feet, and formed a perfectly straight canal, which was inclosed on both sides by thick woods. In front of the almost impenetrable wall formed by the colossal trunk of the trees of which these forests are chiefly composed, there rises, with the greatest regularity, on the sandy bank of the river, a hedge of Sauso, a Euphorbiaceous shrub, about four feet high, with gate-like openings at considerable distances from each other, undoubtedly formed by the large four-footed animals of the forests, for convenient access to the river. At sunset, and more particularly at break of day, the American tiger, the tapir, and the peccary may be seen coming forth from these openings, accompanied by their young, to give them drink. Where they are disturbed by a passing Indian canoe, and are about to retreat into the forest, they do not attempt to rush violently through these hedges of sauso, but proceed deliberately along the bank, between the hedge and the river, affording the traveller the gratification of watching their motions for sometimes four or five hundred paces, until they disappear at the nearest opening.—During *seventy-four days* of almost uninterrupted river-navigation, for 1520 miles, up the Orinoco, in a small canoe, our author witnessed this remarkable spectacle at many different points, and always with renewed gratification. There came to drink, bathe, or fish, groups of creatures belonging to the most opposite species of animals,—the larger mammalia, with many-coloured herons, palamedeas with the proudly-strutting curassow,—carrying back the thoughts of the good old Indian steersman, who had been brought up in the house of an ecclesiastic, to the conception he had acquired of Paradise, but reminding the cockney reader of the "happy family," of Waterloo-bridge and Trafalgar-square notoriety. In these natural "zoological gardens," however, mutual confidence and forbearance do not altogether prevail; for the several races stand apart, watch, and avoid one another; and, as elsewhere, the unlucky capybara occasionally falls a prey, both to his terrestrial and aquatic enemies.—The following description of a night spent on the bank of the Apure, on a sandy flat, skirted by the impenetrable forest, gives a vivid picture of the "nocturnal life" of the animals whose more peaceful condition during the day is so forcibly expressed by the facts just referred to :

> "The air was bland and soft, and the moon shone brightly. Several crocodiles approached the bank ; and I have observed that fire attracts these creatures as it does our crabs and many other aquatic animals. The oars of our boats were fixed upright in the ground, to support our hammocks. Deep stillness prevailed, only broken at intervals by the blowing of the fresh-water dolphins, which are peculiar to the river network of the Orinoco (as, according to Colebrook, they are also to the Ganges, as high up the river as Benares) ; they followed each other in long tracks.
>
> "After eleven o'clock, such a noise began in the contiguous forest, that for the remainder of the night all sleep was impossible. The wild cries of animals rung through the woods. Among the many voices which resounded together, the Indians could only recognise those which, after short pauses, were heard singly. There was the monotonous, plaintive cry of the Aluates (howling monkeys), the whining, flute like notes of the small sapajous, the grunting murmur of the striped nocturnal ape (*Nyctipithecus trivirgatus*, which I was the first to describe), the fitful roar of the great tiger, the cuguar, or maneless American lion, the peccary, the sloth, and a host of parrots, parraquas (*Ortalides*), and other pheasant-like birds. Whenever the tigers approached the edge of the forest, our dog, who before had barked incessantly, came howling to seek protection under the hammocks. Sometimes the cry of the tiger resounded from the branches of a tree, and was then always accompanied by the plaintive, piping tones of the apes, who were endeavouring to escape from the unwonted pursuit.
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> "If one asks the Indians why such a continuous noise is heard on certain nights, they answer, with a smile, that 'the animals are rejoicing in the beautiful moonlight, and celebrating the return of the full moon.' To me the scene appeared rather to be owing to an accidental, long continued, and gradually increasing conflict among the animals. Thus, for instance, the jaguar will pursue the peccaries and the tapirs, which, densely crowded together, burst through the barrier of tree-like shrubs which opposes their flight. Terrified at the confusion, the monkeys on the tops of the trees join their cries with those of the larger animals. This arouses the tribes of birds who build their nests in communities, and suddenly the whole animal world is in a state of commotion. Further experience taught us, that it was by no means always the festival of moonlight that disturbed the stillness of the forest ; for we observed that the voices were loudest during violent storms of rain, or when the thunder echoed and the lightning flashed through the depths of the woods. The good-natured Franciscan monk, who (notwithstanding the fever from which he had been suffering for many months) accompanied us through the cataracts of Atures and Maypures to San Carlos, on the Rio Negro, and to the Brazilian coast, used to say, when apprehensive of a storm at night, 'May Heaven grant a quiet night, both to us and to the wild beasts of the forest !'" (pp. 198-200.)

There can be no doubt, that animals are often strangely sensitive to atmospheric conditions, which produce little or no effect upon ourselves ; and we should therefore be disposed, with Humboldt, to attribute such commotions to a general excitability having this origin.—A singular contrast to these scenes is presented by the stillness which reigns within the tropics, at the noontide of a day unusually sultry ; and we shall quote our author's account of a scene of this kind at the Narrows of Baraguan, where the Orinoco forms for itself a passage through the western part of the mountains of the Parime, which is, however, a basin almost 5700 feet in breadth :

> "With the exception of an old withered stem of Aubletia (*Apeiba Tiburbu*), and a new Apocinea (*Allamanda Salicifolia*), the barren rocks were only covered with a

few silvery croton shrubs. A thermometer observed in the shade, but brought within a few inches of the lofty mass of granite rock, rose to more than 122° Fahr. All distant objects had wavy, undulating outlines, the optical effect of the *mirage*. Not a breath of air moved the dust-like sand. The sun stood in the zenith; and the effulgence of light poured upon the river, and which, owing to a gentle ripple of the waters, was brilliantly reflected, gave additional distinctness to the red haze which veiled the distance. All the rocky mounds and naked boulders were covered with large, thick-scaled iguanas, gecko-lizards, and spotted salamanders. Motionless, with uplifted heads and widely extended mouths, they seemed to inhale the heated air with ecstacy. The larger animal, at such times take refuge in the deep recesses of the forest, the birds nestle beneath the foliage of the trees, or in the clefts of the rocks; but if, in this apparent stillness of nature, we listen closely for the faintest tones, we detect a dull, muffled sound, a buzzing and humming of insects close to the earth, in the lower strata of the atmosphere. Everything proclaims a world of active organic forces. In every shrub, in the cracked bark of trees, in the perforated ground, inhabited by hymenopterous insects, life is everywhere audibly manifest. It is one of the many voices of nature revealed to the pious and susceptible spirit of man." (pp. 200-1.)

The Fourth Essay, modestly entitled *Ideas for a Physiognomy of Plants*, possesses a strong interest for the naturalist and physiologist. It opens with some observations on the almost universal diffusion of living beings,—a class of facts, with which we may presume our readers to be familiar. We may stop, however, to notice one point, which is specially dwelt on by our author, both here and in his other works; namely, the capacity possessed by the Condor, of soaring to heights far above those at which any other known animal can put forth muscular exertion, and of then rapidly descending through the successive strata of the atmosphere, apparently without any discomfort from the extremes of difference in its density, as well as in its temperature, to which it will thus be subjected, even within a few seconds. The region which may be regarded as the common resort of the condor, begins at the elevation of Mount Etna, and embraces atmospheric strata which are from 10,000 to 19,000 feet above the level of the sea. But these birds may be continually seen at an elevation much greater than this; thus, from their known size and from the measurement of the visual angle at which they are seen, when not too far removed from the eye, Humboldt estimates, that, on one occasion, when he was himself at a height of nearly 16,000 feet above the surface of the Pacific, a condor, which he saw directly above his head, must have been 7330 feet from him, or at an absolute height of 23,273. But he has seen the condor, when himself at nearly the same elevation, appearing as a mere black speck on the clear blue sky, its visual angle being too small to be measured; so that its absolute height must have been much greater than that just stated. It appears to soar at these extraordinary elevations for the purpose of looking out for its prey, especially the vicunas, which herd, like the chamois, upon the snow-covered pastures. As a proof of the extraordinary distance at which objects can be discerned in the clear mountain air of the equatorial region, Humboldt mentions, that the white *poncho* of a horseman may be distinguished with the naked eye at a horizontal distance of 89,664 feet, or more than *sixteen miles*, and therefore under a visual angle of thirteen seconds. "It was my friend Bonpland," he tell us, "whom we observed, from the pleasant country-seat of the Marques de Selvalegre, moving along a black rocky precipice on the volcano of Pichinca." There is, therefore, every probability that the condor not unfrequently soars at an elevation not inferior to that of the highest Himalayas, and nearly double that of Mont Blanc. It is well known how much inconvenience is experienced by those who have ascended this last height, in consequence of the rarity of the atmosphere, and the consequent impossibility of taking in the amount of oxygen which is requisite to keep up the power of muscular exertion. And the same inconvenience is experienced by other animals. Thus, the English greyhounds, which were taken out to hunt hares on the high table-land of Mexico, where the barometer stands habitually at a height of nineteen inches. were found unable so support the fatigues of a long chase in this attenuated atmosphere, and would lie down, gasping for breath, before they could come up with their prey; their offspring, however, became naturalized in this new condition, and showed no inferiority in fleetness to their parents. So, again, when the wild bull is hunted on the great mountain plateau. which surrounds the volcano of Antisana, at a height of 13,473 feet above the Pacific, blood flows from its mouth and nostrils. And it has been remarked by Von Tschudi, that, on the Cordilleras, at elevations of more than 12,000 feet, delicate breeds of dogs and the European domestic cat, are exposed to a particular kind of mortal disease.

> "Innumerable attempts," he informs us, "have been made to keep cats as domestic animals in the town of Cerro de Pasco (lying at an elevation of 14,100 feet above the sea's level); but such endeavours have been invariably frustrated, as both dogs and cats have died in convulsions at the end of a few days. The cats, after being attacked by convulsive fits, attempt to climb the walls; but soon fall to the ground, exhausted and motionless."

Such being the case, it is not a little remarkable that the condor should be able to maintain the actions of flight at an elevation where the barometer falls to 13 inches or less; more especially when it is borne in mind, that the amount of muscular effort needed for the support and movement of the body in the atmosphere must be augmented in proportion to its rarefaction; since the wings must of course act at less advantage, the less resistance their strokes meet with. There must be some remarkable adaptation in the constitution of the condor, to enable it to fly with apparently equal facility under a pressure of 13 and of 30 inches, and to bear a rapid transition from one degree to the other: and also, as Humboldt remarks, to prevent the membranous air-sacs from bursting by the inflation they will undergo at heights of 23,000 feet and upwards, after being filled in the lower regions of the atmosphere.

After noticing the various conditions which are chiefly concerned in forming the character of the different regions of the earth, our author concludes that,—

> "However much the total impression may be influenced by the outline of mountains and hills, the physiognomy of plants and animals, the azure of the sky, the form of the clouds, and the transparency of the atmosphere, still it cannot be denied that it is the vegetable covering of the earth's surface which chiefly conduces to the effect. The animal organism is deficient in mass, while the mobility of its individual members, and often their diminutiveness, remove them from the sphere of our observation. Vegetable forms, on the other hand, act on the imagination by their enduring magnitude—for here massive size is indicative of age, and in the vegetable kingdom alone are age and the manifestation of an ever renewed vigour linked

together. The colossal Dragon-tree, which I saw in the Canary Isles, and which measured more than sixteen feet in diameter, still bears, as it then did, the blossoms and fruit of perpetual youth. When the French adventurers, the Béthencourts, conquered these Fortunate Isles, in the beginning of the fifteenth century, the Dragon-tree of Orotava, regarded by the natives with a veneration equal to that bestowed on the olive-tree of the Acropolis at Athens, or the elm at Ephesus, was of the same colossal magnitude as at present. In the tropics, a grove of Hymeneæ and Cesalpiniæ is probably a memorial of more than a thousand years." (p. 220.)

In this conclusion, any one who has witnessed the extraordinary diversity of effect produced by the vegetation of tropical and temperate climates, in the midst of scenes in other respects similar, will be prepared to acquiesce. He then points out, that the prodigious number of species of flowering-plants which botanists have now collected and described, may be ranked under a few typical forms; these forms, on whose individual beauty, distribution, and grouping, the physiognomy of a country's vegetation depends, not being always such as the systematist will select as his types, but those from whose magnitude or peculiarity of configuration, the total impression of a district chiefly derives its character of individuality. Thus, even scantily-dispersed examples of the groups of the Arborescent Grasses (Bamboos, &c.) the Aloe form, the species of Cactus, Palms, acicular-leaved trees, Mimoseæ, and Bananas, determine the character of a district, and produce a lasting impression on the mind of the unscientific but susceptible beholder. "Other forms, perhaps more numerous and preponderating, may not appear equally marked, either by the shape or position of the leaves, the relation of the stem to the branches; luxuriant vigour, animation, and grace; or even by the melancholy contraction of their leaf-organs." Whilst it is from the characters of the reproductive apparatus, that the systematist derives his indications of the affinity or the remoteness of the several tribes of plants, it is chiefly in the vegetative or nutrient organs that those features present themselves, which strike the ordinary observer. Hence it has been, that,—

> "In all European colonies, the inhabitants have been led by resemblances of physiognomy to apply the names of European forms to certain tropical plants, which bear wholly different flowers and fruits from the genera to which these designations originally referred. Everywhere in both hemispheres, the northern settler has believed he could recognise Alders, Poplars, Apple, and Olive trees; being misled, for the most part, by the form of the leaves and the direction of the branches."

So among the Marsupial Mammals of Australia, the European settlers have found their hyæna, wolf, rat, squirrel, &c. &c.; the least resemblance to forms previously familiar having been seized upon in the bestowal of these appellations.

It might have been anticipated, *à priori*, that variations in the leaf-system and in the reproductive apparatus would present some degree of mutual accordance, if not of interdependence; but such accordance has only been observed in a very small number of families, as Ferns, Grasses, Cyperaceæ, Palms, Coniferæ, Umbelliferæ, and Aroideæ. We observe a strong physiognomical resemblance between the *Palms* and *Cycadeæ*, although the latter are exogenous gymnosperms; between the *Cuscuta* (broom-rape), belonging to the Convolvulaceæ, and the leafless *Cassytha*, a parasitical Laurinea; between *Equisetum*, a Cryptogamic form, and

Ephedra, a Coniferous tree. On the other hand, the *Grossulareæ* (gooseberry and current tribe) are so nearly allied to the Cactus family, as to their inflorescence, that it is difficult to separate them; yet how wide their physiognomical diversity? And the family of the *Asphodeleæ* comprises the gigantic Dragon-tree (*Dracæna Draco*,) the common *Asparagus*, and the coloured flowering *Aletris*, three extremely diverse forms. The distinction between simple and compound leaves is one which establishes a marked physiognomical difference; yet it is one of no systematic value, since it may present itself not merely in the different genera of the same family, but even in the different species of the same genius; and even, as we have ourselves witnessed, in the different branches of the same individual. The elegant form of the doubly-pinate leaf, which constitutes so great an adornment of the torrid zone is most frequently met with in the order *Leguminosæ*, but not equally in all sections of it; for it is restricted to the *Mimosaceæ* and *Cæsalpineæ*, never having been observed among the *Papilionaceæ;* and in this large and important order, the accordance between inflorescence and physiognomical character is so far from being constant, that we meet with an extereme diversity of aspect among its members, although they are all united by a marked correspondence in fructification.—These are a few of the examples, which show us how little a systematic view of the geographical description of the Natural Families of Plants can serve, when taken alone, to indicate the physiognomical character of a region.

Before proceeding, with our author, to notice his leading physiognomical types, we shall briefly follow him in the inquiry which is appended, in the form of a long note to this portion of this Essay, into the probable number of species of Flowering-Plants at present in existence upon the earth's surface. Such an estmate may be based on two sets of data. In the first place, it may be inquired, how many species of flowering-plants have already been collected and described, and what proportion of the earth's surface may be regarded as having its Phanerogamic Flora completely or partially represented in existing collections; from which it may be computed how many additional species may be expected from regions whose botany has been imperfectly or not at all explored. Or the same kind of comparison may be pursued with certain families, whose relation to the whole Phanerogamic Flora of different regions has been carefully determined. In making such estimates, it is desirable, as Humboldt justly remarks, to seek rather, for the numerical limit, *below* which we cannot fix the sum; rather than to attempt to fix the actual number. The estimate of the number of species known and described is not so easy as it might at first sight appear. No one herbarium contains by any means the whole of them; it would only be by the laborious comparison of different herbaria, that the species peculiar to each could be selected from amongst those common to both, and the actual number included in the two be thus ascertained. In the great Paris Herbarium, collected by Benjamin Dellessert, and given up by him to free general use, the number of species at the time of his death was 86,000; but we learn, from a recent enumeration, that it is now not less than 120,000. The whole number of flowering plants in the Great Royal Herbarium of Berlin is estimated at 74,000 species. Allowing for probable deficiencies in the former, we might not be far wrong in estimating the number of known species at 150,000. And this corresponds with the estimate formed by Humboldt upon the basis of the numbers of particular families of plants cultivated in the Botanic Garden of Berlin, in relation to the whole number of described species of those families. Thus, of the very large families of Compositæ, Leguminosæ, and Grasses, he finds that the 1-7th, 1-8th, 1-9th respectively of the described species are grown there; the proportion is greater for some of the smaller families, as those of Labiatæ and Umbelliferæ, but it is much lower for many of the families which are most abundant in tropical climates. Hence, taking an average of 1-8th for the whole, and estimating the number of species in simultaneous cultivation in European gardens at 20,000, the number of known species may be considered to be 160,000. But this estimate is probably too low; since good authorities estimate the number of the Phanergamia already known as 213,000 species; and as a recent enumeration of those in cultivation raises their number to 35,600, the number of known species, would rise, in the same proportion, to above 250,000.—Now, from a comparison of what we know of the existing Flora, with what we are probably ignorant of, it is considered by Humboldt (and there is no higher authority,) as next to certain, that we must *double* our estimate of the number of species already collected, in order to represent the total amount. It is especially urged by him, that the regions whose botany has yet been least explored, are those in which there is the greatest variety of phanerogamic vegetation, or the largest number of species of an equal area,—namely, in the tropical and sub-tropical zone.

> "It is, therefore, the more important to bear in mind, that we are almost wholly unacquainted, north of the Equator, in the new continent, with the floras of Oaxaca, Yucatan, Gautimala, Nicaragua, the Isthmus of Panama, the Choco, Antiocquia, and the Province de los Pastos; while, south of the Equator, we are equally ignorant of the floras of the boundless forest region between the Ucayale, the Rio de la Madura, and the Toneantin (three mighty tributaries of the Amazon,) as well as those of the Paraguay and the Province de las Missiones. In Africa, we know nothing of the vegetation of the whole of the interior, between 15° north and 20° south lat.; and in Asia we are unacquainted with the floras of the south and south-east of Arabia, where the highlands rise to an elevation of 6400 feet; as also with the floras between the Thian-schan, the Kuen-Lün, and the Himalaya; those of Western China; and those of the great portion of the countries beyond the Ganges. Still more unknown to Botanists are the interior portions of Borneo and New Guinea, and of some districts of Australia." (pp. 292-3.)

The total number of Cryptogamic plants hitherto described, has been estimated at somewhat beneath 20,000; but this estimate must receive considerable augmentation from the microscopic species of the families *Desmideæ* and *Diatomaceæ*, which most physiologists now seem agreed to refer to the vegetable kingdom, and from many other microscopic organisms which will probably have to be transferred thither from among the Infusory tribes. And it is obvious, that as the Cryptogamia, excepting perhaps the Ferns, have not been collected with nearly the same care that has been bestowed upon the flowering-plants a much larger allowance must be made for the unknown species. We should certainly be within the mark, therefore, in setting down 50,000 as the *lowest possible* number of existing Cryptogamia.

It may be interesting to our readers, if we subjoin to these calculations an estimate of the same kind, which we have lately taken some pains to form, in regard to the probable number of existing species of animals. The total number of existing species of *Mammals*, known to natualists is about 1700; and it is probable that scarcely more than 300 remain to be discovered. Of *Birds*, about 8000 species are certainly known; and to these we may perhaps add 4000 for those not yet discovered, or not yet clearly distinguished. Of *Reptiles*, about 1200 species are known; but it is probable that the proportion not yet discovered is larger, and that for this we should add at least 800 species. Of *Fishes*, about 8000 species are known; and to these, also, numerous additions may be expected, probably at least 4000 species. Thus of Vertebrated animals alone, nearly 19,000 species are known, and 9000 more are probably in existence. The number of *Mollusks* has been hitherto chiefly reckoned by that of the *shells* contained in collections, no account being taken of any but the testaceous species. Of these about 15,000 species have been collected; and it is next to certain that at least as many more are unknown to the conchologist. But the number of naked or shell-less mollusks is undoubtedly extremely large; and of these it is probable that the number already known bears but a very small proportion to the whole. Thus of the tribe of Nudibranchiate Gasteropods, only about a dozen species were formerly known as inhabiting the coast of Britain; but in the beautiful 'Monograph' of Messrs. Alder and Hancock (in course of publication by the Ray Society) more than a hundred British species will be described. The class of *Insects*, however, far outnumbers all the preceding, both as to the number of species already known, and still more as to the number of whose existence we have presumptive evidence. It is certain that at least 150,000 species are at present to be found in collections; and that these do not by any means include the total number existing even in the countries whose entomology has been best explored. For example, the number of known British insects has been raised within the last few years from 9000 or 10,000 to 15,000; and we are assured that at least 5000 more species are known, though as yet undescribed; whilst new species of the minuter tribes are being discovered almost daily. Now if we take the number of species of indigenous flowering plants in this country (where it is scarcely possible that a dozen more remain to be discovered) at 1500, and the British insects at 15,000, we have *at least* TEN species of insects to every flowering plant; and looking at the continual discovery of new forms of this class, we seem justified in saying that the number of British Insects is really *from twelve to fifteen* times that of the British Phanerogamia. Taking the lowest estimate, however, and ranking the total number of existing Phanerogamia at the low estimate of 300,000, it is obvious that the number of existing species of insects cannot be less than *three millions;* whilst if we take a higher estimate of the number of existing Phanerogamia, and of the proportion which insects bear to them, the probable number of species of the latter will amount to *five millions*, or even more! With respect to other Articulata, and the whole subkingdom of Radiated animals, we have not yet sufficient data to form even an approximative estimate.

Returning to the "Physiognomy of Plants," we find that Humboldt indicates sixteen* principal forms, as those on which the character of a region chiefly depends. As to these, however, he remarks with philosophic caution :

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* According to our reckoning, the number of principal forms enumerated by Humboldt amounts to *nineteen*.

> "I merely enumerate such as I have observed in my travels through the old and new world during many years' study of the vegetation of different latitudes, between the parallels of 60° north and 12° south. The number of these forms will no doubt be considerably increased by travellers penetrating further into the interior of continents, and discovering new genera of plants. We are still wholly ignorant of the vegetation of the south-east of Asia, the interior of Africa and New Holland, and of South America from the Amazon to the province of Chiquitos. Might not a region be some day discovered in which ligneous fungi, *Cenomyce rangiferina*, or mosses, form high trees? *Neckera dendroïdes*, a German species of moss, is in fact arborescent, and the sight of a wood of lofty mosses could hardly afford greater astonishment to its discoverers than that experienced by Europeans at the aspect of arborescent grasses (bamboos) and the tree-ferns of the tropics, which are often equal in heigth to our lindens and alders. The maximum size and degree of development attainable by organic forms of any genus, whether of animals or plants, are determined by laws with which we are still unacquainted. In each of the great divisions of the animal kingdom, as insects, reptiles, crustacea, birds, fishes, or mammalia, the dimensions of the body oscillate between certain extreme limits. But these limits, based on the observations hitherto contributed to science, may be enlarged by new discoveries of species with which we are at present unacquainted." (pp. 221-2.)

Of his graphic delineation of these types, we shall endeavour to combine the most important features with some facts drawn from the Illustrations.

1. The *Palms;* the loftiest and most stately of all vegetable forms, their unbranched stems rising, like slender columns, to the height of 200 feet or even more. "To these, above all other trees, the prize of beauty has always been awarded by every nation; and it was from the Asiatic palm-world, or the adjacent countries, that human civilization sent forth the first rays of its early dawn." The palm diminishes in size and in beauty as it recedes from the equatorial towards the temperate zone; and Europe owns among its indigenous trees only one dwarfish species.

2. *Scitamineæ* and *Musaceæ;* of which the Plantains and Bananas are the type. These, too, are nearly restricted to the inter-tropical zone, to the natives of which their fruits are among the most important articles of food. The contrast between these and the Cerealia, in their physiognomical aspect, is strikingly put by Humboldt. "Whilst the cereals, spread by culture over the northern regions, in monotonous and far extending tracts, add but little to the beauty of the landscape, the inhabitant of the tropics, on the other hand, is enabled, by the propagation of the banana, to multiply one of the noblest and most lovely of vegetable productions."

3. The *Malvaceæ Bombaceæ;* the arborescent forms of both which orders are almost exclusively tropical. The former are represented in the northern part of the temperate zone by herbaceous forms only; but larger species occur in Italy, and contribute to impart to its vegetation a more southern character. The latter, to which belong the gigantic *Adansonia*, or Baobab tree, and the Silk-cotton tree, one of the most beautiful of all Exogens, is restricted to the neighbourhood of the tropics.

4. *Mimoseæ*, *Acaciæ*, &c., possessing delicately pinnate leaves, whose feathery foliage may be regarded as peculiarly characteristic of tropical vegetation, although some representatives of this tribe may also be found

without the tropics. This beautiful form is most abundant in the New World, where under equal parallels of latitude, vegetation is more varied and luxuriant than in Europe. "An extremely picturesque effect is produced by the deep blue of a tropical sky, gleaming through the delicate tracery of their foliage."

5. The *Heaths;* with which group are to be associated physiognomically the Epacridæ and Diosmeæ, many Proteaceæ, and even the Australian Acacias, which have *phyllodia*, or flattened leaf-stalks, in place of true leaves. The arborescent heaths of Africa and the South of Europe give an aspect of luxuriance, very different from the idea of drought and barrenness that are associated with the forms with which the inhabitants of tropical regions are familiar. There are some very remarkable peculiarities attending the geographical distribution of the true Heaths. The common heath, *Calluna vulgaris*, covers large tracts of country from the Atlantic coasts of Europe to the western declivity of the Ural; northwest it passes into Scotland, Norway, and even into Ireland and Newfoundland, although not hitherto discovered in Greenland. But it ceases abruptly on the Uralian ridge, not presenting itself on the eastern declivity, nor in any part of Siberia or Central Asia. No other true Heath has yet been found in the whole of the New World; the order being there represented by the Rhododendron, Gualtheria, &c., which, although *botanically* replacing the heaths, do not do so *physiognomically*. The natural family of the Ericaceæ is almost entirely wanting in Australia, where its place is supplied, both botanically and physiognomically, by the Epacridæ. The metropolis of the true heaths, as is well known, is in Southern Africa, where several hundred species are met with; and of these only a single one extends into Northern Africa and Southern Europe.

6. The *Cactus* form; which, unlike the preceding is almost peculiar to the New Continent, and attains its greatest development between the tropics, although certain species are found in temperate regions, and high up on mountain declivities. It is unnecessary to dwell on the strange contrast presented by this remarkable group of plants to all others; and on the peculiar character which they must impress on the physiognomy of a region in which they are abundant. The only plants of the Old World, whose aspect in any degree approximates that of the cacti, are certain of the African Euphorbias. The cacti are remarkable for their power of growing in the most arid spots, in virtue of the succulence of their texture, and the thickness of their cuticle; whereby they are able to drink in an enormous quantity of moisture when it is abundant, and to retain it in the most desiccating atmosphere. Thus they form green oases in the parched and arid plains of South America; some of the wild animals of which have learned to tear open the Melon Cactus, in spite of its thorny covering, in order to refresh themselves with the juices of its interior.

7. The *Orchideæ;* a tribe of plants very widely diffused over both the Old and the New World, but presenting a remarkable diversity of aspect according to climate and situation. In the temperate and cold zone, we find only terrestrial Orchideæ, some of which are quite alpine in their habit, shedding beauty over the most desolate rocky clefts. But in addition to these, multitudes of species are found in tropical regions, and especially in the dense forests of South America, clinging to the trunks of

trees, imparting the most brilliant and variegated hue to their surfaces, seared and discoloured as these are by the action of light. "An entire life would not suffice to enable an artist, although limiting himself to the specimens afforded by one circumscribed region, to depict the splendid Orchideæ which embellish the deep alpine valleys of the Peruvian Andes." No fewer than 3545 species of Orchideæ have been enumerated; and of these as many as 2360 are in cultivation in the single collection of Messrs. Loddiges, to whose zeal we owe much of our increased knowledge of these remarkable plants.

8. The *Casuarineæ;* a very remarkable form, more singular than beautiful, peculiar to the islands of the Pacific and to the East Indies. Like the Cactus tribe, the Casuarineæ are leafless; but their aspect is altogether different, their branches being thin and thread-like, so that some of them present a strong resemblance to Equisetacea, and others to Coniferæ. Traces of this type may be found among other natural orders, and in various parts of the world.

9. The *Coniferæ* and other acicular-leaved trees; a form which produces an important influence on the physiognomical character of the northern temperate, and even of polar regions. "Their evergreen foliage enlivens the gloom of the dreary winter landscape, while it proclaims to the natives of the polar regions that, although snow and ice cover the surface, the inner life of plants, like the Promethean fire, is never wholly extinct on our planet." This tribe is more remarkable for its *individual* multiplication, than for the number of its *species*, which are very few in proportion to the important part they perform in the economy of Nature. The number of existing species of Coniferæ already described is not much above 300; which is not equal to the number of species of Palms already known to botanists. Whilst the latter grow, however, in almost solitary grandeur,—associating only into groves or clusters,—the Coniferæ are social in their habit, the same species extending itself continuously in densely-packed forests over vast areas. The preponderance of Coniferæ in the northern hemisphere is very remarkable; more than three fourths of the species already described being restricted to it. Between the tropics, the acicular-leaved trees are only found at considerable elevations; and consequently would have remained wholly unknown to the inhabitants of that zone, but for the rise of certain parts of the surface of the earth in those regions. The heights at which the pines and oaks begin to grow, on the Mexican highlands, are hailed with joy by those who come from the sea-coast; because they announce a climate not yet invaded, as far as experience has hitherto shown by yellow fever. The lower boundary of the oak vegetation, in that region, is from 2500 to 3000 feet above the sea-level; that of the pine-growth is from 4000 to 6000 feet. The superior boundary of the oaks, on the declivities of the Mexican mountains, is about 10,400 feet; that of the pines nearly 13,000 feet, or 200 feet higher than the summit of Etna. In a few rare instances, pines and palms are seen together, both in the Old and New Worlds; as in the valley of Dudegaon in Nepaul, where the *Pinus longifolia*, or Tschelu Fir, was found by Dr. Hoffmeister, in a forest mingled with the lofty stems of the *Chamærops martiana;* and on the road from Acapulco to Chilpanzingo, where this intermixture was first observed by Humboldt. Indeed we learn from Peter Martyr Anghiera, the friend and contemporary of

Columbus, that this interspersion of the *pineta* and *palmeta* excited the astonishment of the early discoverers of these regions.—The distribution of the subdivisions of the Coniferous tribe is extremely remarkable. According to the latest determinations, it appears that out of the 114 species now known of the genus *Pinus*, there is not a single one in the whole southern hemisphere; although several are found very near the equator on its northern side. The Juniperinæ, Cupressineæ, and some other forms, are likewise restricted to the northern hemisphere. On the other hand, the *Araucaria* and several other important genera are equally restricted to the southern hemisphere, and sometimes to particular islands. The loftiest Coniferæ are found in the temperate regions of both hemispheres, and on the parts of tropical mountain slopes which correspond to them; the greatest height yet measured, is attained by the *Pinus trigona* of the Rocky Mountains, of which one stem was 300 feet high, and without branches for the first 192 feet; the *Pinus Douglasii*, in the same region, and near the Columbia river, has been seen to attain a height of 245 feet, and a circumference of 57¾ feet at three feet above the ground; the *Araucariæ* of Norfolk Island and of Brazil frequently attain the height of from 200 to 260 feet; whilst the loftiest red and white pines of Europe reach an altitude of 160 or 170 feet. In most striking contrast with these giants of the vegetable creation, is a little flowering plant that grows in the beautiful climate of the southern tropical region. "While crossing the Rio Clairo in the Brazilian province of Goyaz," says Auguste St. Hilaire, "I perceived on a stone a plant, the stalk of which was not more than *three lines* high, and which I considered at first to be a moss. It was, however, a phanerogamic plant, supplied with sexual organs like our oaks, and those gigantic trees which raised their heads around." Among the curious physiological phenomena presented by the Coniferæ, is the development of woody excrescences from the roots of the *Taxodium distichum*, a cypress-like tree common in Mexico and in the southern states of North America, which attains the height of 128 feet, and the enormous diameter of from 30 to 40 feet. These excrescences are sometimes conical and rounded, and sometimes have a tabular shape, projecting from three to five feet above the ground; they have been compared to boundary-posts, or to the grave tablets in a Jewish burial-ground. They are probably to be regarded as analogous to the adventitious buds which spring from the roots of other trees; their development being checked by some cause which obstructs their perfect evolution. Another remarkable phenomenon is observable in the ordinary white pine; the stumps of which, if left in the ground after the trunks have been felled, continue to form new layers of wood during several successive years, without throwing out shoots, leaves, or branches. At the conclusion of a long note on the geographical distribution of the Coniferæ, our author mentions the "singularly painful impression" which the first sight of a pine-forest made on one of his travelling companions, who, born at Quito under the equator, had never seen acicular-leaved trees. "The trees appeared to him to be leafless; and because we were journeying toward the cold north, he thought he recognised already, in the extreme contraction of the organs, the impoverishing influence of the pole."

10. In striking contrast with the foregoing are the *Aroideæ*, or Pothos-plants; which, like the parasitical Orchideæ, yield a graceful covering to

the aged stems of forest-trees in the tropical world, like the parasitic mosses and lichens of our own climes. They are for the most part succulent herbaceous plants without stems, and having only aerial roots; remarkable for their broad expanded leaves, and for the flower-like spathes which envelope their true blossoms. The order contains a few arborescent species; but it is by the herbaceous forms that its influence on the physiognomy of a country is chiefly determined. This influence is almost exclusively confined to the tropics, and is but little manifested in temperate regions; the extension of the Arum around the Mediterranean, however, contributes to give a luxuriant southern character to the vegetation of Spain and Italy.

11. The *Lianes* or creeping-plants, constitute a very remarkable feature in tropical vegetation, especially in the southern hemisphere. The form thus designated contains species from many different orders, which have a common habit of growth. Our own tendrilled hops, vines, and bindweeds remind us of this form, which exhibits the utmost luxuriance of vegetation in the tropical bignonias, passion flowers, &c. The genus Bauhinia is one of the most remarkable examples of its peculiar growth; for it not only climbs lofty trees, but sends down leafless branches, which hang perpendicularly like ropes, until they either reach the ground and take root there, or are driven by the wind in the direction of some neighbouring trunk or branch, around which they coil. The various kinds of *lianes* exercise a most important influence in rendering the forests of the regions in which they prevail impenetrable by man, but most accessible and habitable to the arboreal mammalia, such as the whole monkey tribe, and the smaller felines; for they afford to whole flocks of gregarious animals an easy means of rapidly ascending lofty trunks, of passing from one tree to another, and even of crossing brooks and rivulets. Some of the tropical climbing-plants are gigantic arboreal representatives of our trailing grasses; thus, both in the eastern and western hemispheres, bamboos are found twining round large trunks of trees, which are adorned at the same time with flowering Orchideæ.

12. In striking contrast with the pliant climbing *lianes*, with their fresh and brilliant verdure, is the self-sustaining form of the *Aloe* tribe; which, however, is exhibited also by certain genera of several other orders, such as Liliaceæ, Asphodeleæ, Pandaneæ, Amaryllideæ, and Euphorbiaceæ, all of these, with the exception of the last, being Monocotyledonous. The physiognomical character of these plants is derived from their almost branchless stems, springing from a crown of succulent, fleshy, long-pointed leaves, which radiate from a centre; the stem very commonly developing, at its summit, a magnificent crown of blossoms, whose flower-stalks have a candelabra-like arrangement. The lofty-stemmed aloe does not grow in clusters, like other social plants; but stands isolated in the midst of dreary solitudes, with an air of solemn repose and immobility, imparting to the tropical landscape a peculiar melancholy character.

13. The *Grass* form, on the other hand, when fully developed, is expressive of buoyant lightness and flexible slenderness; and constitutes one of the most beautiful adornments of tropical vegetation. In both the Indies, we have arched and shady walks formed by bamboo-groves; yet these are, for the most part, generically different, the genus *Bambusa* being restricted to the Old World, that of *Guadua* to the New, whilst that of

Arundinaria occurs in both continents, although differing specifically in each. These arborescent grasses advance into temperate climates, and show themselves in the corresponding zones of mountain-districts between the tropics; as far north as Italy we find the *Arundo donax* raising itself from the ground, and making itself visible by its height on a general survey of the country. On the other hand, as the herbaceous grasses mark the boundary of phanerogamic vegetation as we pass towards the northern and southern polar regions, so do we find them, with some few herbaceous dicotyledons, constituting the highest phanerogamic zone on the snow-crowned summits of intertropical mountains. It is a curious fact, established by the researches of Dr. J. D. Hooker, that the grasses approach nearer by 17½° to the north than to the south pole. The most antarctic flowering plant yet discovered is in one of the South Shetland Islands, lat. 62° S.; in other islands of the same group a degree or two farther south, only cryptogamia have been discovered; and Cockburn's island, lat. 64° 12′, S., appears to be the Ultima Thule of antarctic vegetation. On the other hand, Walden Island (lat. 80½° N.) still possesses ten species of phanerogamia:

> "Antarctic phanerogamic vegetation is also poorer in species at equal distances from the pole; thus Iceland has five times more phanerogamia than the southern group of Auckland and Campbell Islands; but the uniform vegetation of the antarctic regions is, from climatic causes, both more succulent and more luxuriant."

14. The form of the *Ferns*, like that of Grasses, also assumes nobler dimensions in the tropical regions; specially preferring, however, not the hottest localities, but those approaching the temperate character, such as mountains that rise 2000 or 3000 feet above the level of the sea, or islands whose extreme heat is moderated by the comparative coolness of the surrounding ocean; and being most abundant where the atmosphere is most constantly and uniformly charged with moisture. The arborescent Ferns, which are somewhat palm-like in their aspect, sometimes attain a heighth of 40 feet; their stem is thicker, shorter, and more rough and scaly than that of the palm; the leaf is more delicate, of a loose and more transparent texture, and sharply serrated on the margins. The tree-ferns extend much further from the equator on the southern side, than they do on the northern; being found in New Zealand and Van Dieman's Land, and even as far as the Straits of Magellan and Campbell Island; that is, in a southern latitude as high as the northern latitude of Berlin. Where they are abundant, they give to the vegetation a very peculiar physiognomy. The geographical distribution of this form is peculiar in this respect, that, whilst it is universally diffused, the numerical ratio which it bears to phanerogamic vegetation is subject to a most remarkable variation. In the islands of St. Helena and Ascension, the number of species of Ferns is nearly equal to half that of the Flowering Plants; in many of the South Sea Islands, it is 1-4th; in the mountainous districts of tropical continents, it is from 1-6th to 1-8th; in the other portions of these continents, 1-20th; whilst, as we recede from the tropics, we find the proportion of the ferns to diminish to 1-35th (as in North America and the British Islands), 1-58th (as in France), and 1-84th (as in Greece). The proportion rises again, however, as we advance further towards the poles, in consequence of the greater rapidity of diminution in the number

of species of Phanerogamia, than in that of the ferns; thus the number of species of Ferns in Lapland is 1-25th that of the Flowering Plants; in Iceland 1-18th; and in Greenland, 1-12th.

15. The *Liliaceous* form, with their flag-like leaves and splendid blossoms, is chiefly characteristic of Africa; there the greatest diversity prevails; and there it forms masses, which constitute important features in the physiognomy of the region. Some magnificent forms are found, it is true, in the New Continent; but these are more diffused, and of less social habits, than the European and African Liliaceæ.

16. The *Willow* form is indigenous in all climates, save Australia and the neighbouring islands; and everywhere presents a similarity of foliage, of ramification, and of the whole physiognomical conformation, as remarkable as that of the Coniferæ. The metropolis of this group, however, is the northern temperate region; the number of species, and the varieties of form, being the greatest in Northern Europe, between 46° and 70°. Those which are found between or near the tropics are at high elevations, as on the plateau of Mexico, or on the declivities of the Himalayas.

17. The *Myrtle* form imparts a peculiar character to three regions of the earth; viz. to Southern Europe, and more especially the islands in the Mediterranean Sea; to the great island-continent of New Holland; and to an intertropical region in the Andes of South America, part of which, lying at an elevation of from 9000 to 10,000 feet above the sea-level, is entirely covered with trees having a myrtle-like aspect. The tribes which present this form in Australia have a peculiar disposition of the leaves, the two surfaces being vertical, instead of horizontal; and this, taken in connexion with the absence of leaves in the Acacias of that country, gives a distribution of light and shade which is wholly unknown in the Old World, these two forms constituting nearly one half of the whole arborescent vegetation. The Myrtaceæ of the Southern Hemisphere recede much further from the Equator than do those of the Northern; the limit of the former being 50¾° S., whilst that of the latter is 46° N.

18. The *Melastomaceæ* of tropical America are so limited in their distribution, as not to require particular notice.

Lastly, 19, the *Laurel* form is especially abundant in South America; but is physiognomically represented in the East Indies by trees of other orders.

> "It would be," says Humboldt, "an undertaking worthy of a great artist to study the character of all these vegetable groups, not in hot-houses, or from the descriptions of botanists, but on the grand theatre of tropical nature. How interesting and instructive to the landscape painter would be a work that should present to the eye accurate delineations of the sixteen principal forms enumerated, both individually and in collective contrast! What can be more picturesque than the arborescent Ferns, which spread their tender foliage above the Mexican laurel-oak! what more charming than the aspect of Banana-groves, shaded by those lofty Grasses, the guadua and bamboo! It is peculiarly the privilege of the artist to separate these into groups; and thus the beautiful images of nature, if we may be permitted the simile, resolve themselves beneath his touch, like the written works of man, into a few simple elements." (pp. 229-30.)

We have thus endeavoured to glean for our readers the most interesting facts crowded together in this remarkable Essay, and in its illustrative notes, the latter of which are altogether just six times as long as the original text. We have dwelt specially upon it, because the "View of Nature" which it presents is not only most attractive in itself, but because it is such as (for the reasons already named) could not be found in the formal treatises, either of Systematic Botany, or of the Geography of Plants. Of the remainder of the volume, it will be enough for us to do little more than mention the contents. The Fifth Essay is on the *Structure and Mode of Action of Volcanoes;* and however interesting to the geologist, has nothing to fix the attention of the physiologist. This is followed by the short Essay, entitled *Vital Force, or the Rhodian Genius;* which was intended by the author to embody, in an allegorical form, the idea, that the "vital forces" subtract particles from the domain of inorganic nature, overcome for a time their original affinities, and hold them together in new combinations, until they are themselves exhausted, after which these particles return to their former state. With these views, physiologists of the present day are sufficiently familiar; but the author himself appears to abandon them for the idea, that the supposed "vital forces" are but modifications of the ordinary forces of matter, acting under peculiar conditions. We shall take an early opportunity of entering upon this question more fully than we could do at present. The volume closes with a view of "The Plateau or Table-land of Caxamarca, the Ancient Capital of the Inca Atahuallpa and the First View of the Pacific Ocean from the Ridge of the Andes," which, though fully partaking of the interest of the previous Essays, presents nothing that particularly calls for our notice.

We have thus endeavoured to give to our readers such an idea of the contents of this remarkable volume, as may enable them to judge of its peculiar character. And we have only a few words to say, in conclusion, in reference to Mr. Bohn's translation. The greater part of this has been executed by Miss Otté, the lady who so well rendered the 'Kosmos' into English for the same spirited publisher; but, being prevented by indisposition from proceeding with it, the task has been completed by others, under the supervision of Mr. Bohn himself. The edition is distinguished by the same merits as those which we formerly noted in the 'Kosmos.' The translation is faithful, and at the same time good English; no small praise when a German work is the subject of it. We have noticed but a very few blemishes, and these are of the most trivial kind, such as the use of the term *church-yard* for the Jewish burial-ground. The scientific terms are, as far as we have observed, accurately rendered throughout. All the foreign measurements have been converted; a point which we have uniformly insisted on, as essential to the completeness of a translation of a foreign scientific work. And the principal Latin, French, and Spanish quotations have been translated. As a frontispiece, we have an interesting view of Chimborazo (from a sketch by Humboldt himself), beautifully printed in oil-colours; and Mr. Bohn has also furnished a facsimile of Humboldt's hand-writing, in a letter to himself. When we add, that the book is furnished with an excellent index, we have said all that can be necessary in commendation of the mode in which it has been brought by Mr. Bohn before the English public.

Art. XI.

Island undersögt fra lægevidenskabeligt Synspunct. Af P. A. Schleisner, m.d., Nedlem af the kongelige medecinske Selskab i Kjöbenhavn.— *Kjöbenhavn.*

Iceland Investigated in a Medidal Point of View. By P. A. Schleisner, m.d., Fellow of the Royal Medical Society in Copenhagen.— *Copenhagen.*

In our last number we brought under the notice of our readers some of the results of recent enquiries into Tropical Hygiène, which have the most important bearing on the sanitary condition of our own country, and upon those general questions of Ætiology which are now deservedly occupying so much attention, both with the profession and the public. We shall now carry them from the neighbourhood of the Equator to that of the Pole, and shall bring before them a state of things altogether different; a departure from the laws of health of the grossest kind, followed, as might be anticipated, by a fearful mortality; but an almost complete exemption from maladies which are elsewhere most fatal.

In 1847, Dr. Schleisner was commissioned to visit Iceland and Westmannoe; the former island, with the view of making a general report upon its Medical Statistics; the latter, for the sake of investigating a peculiar and formidable disease, pre-eminently fatal to infants. The results of this second enquiry we have not seen; those of the former are before us. Still, they are not final. With laudable caution, Dr. Schleisner, in his abstinence from premature induction, has refrained from expressing an opinion upon several interesting points, until his *data* have been increased; for which purpose he has distributed over Iceland a series of queries, the answer to which he expects in due time, and with proper patience. Nevertheless, he has already collected enough to form the materials of a valuable work.

In dealing with this we shall first lay before our readers a sketch of the climatological and social conditions of the country in question; and treating these as predisposing causes for either the prevalence or the absence of certain forms of disease, shall afterwards enumerate the actual hygienic phenomena, as they actually present themselves; premising only that they will not be exactly what we are likely to expect, *à priori.*

Climate.—Preeminently volcanic in its structure, but lying on the very verge of the Artic Circle, Iceland is a country of external snow, and internal fire; the thermal spring and *fumerole* being in juxtaposition with the cataract and the glacier. Sterile from its northern locality, and sterile from its isolated position, its barrenness is increased by the mountainous and disrupted character of its surface; ice-bergs, according to Bunsen, cover almost a tenth of the island; and vast marshes and cheerless swamps add to the appearance, as well as the reality of the desolation. To these permanent elements of poverty, we must add, that the volcanoes of Iceland are still active at frequent though irregular intervals, and are destructive both to human life and to the results of human industry. Still, the climate is insular, and, as such, removed from the extremes both of heat and cold; and though unfavorable to the growth of trees, which are almost wholly wanting, and unfavorable to that of corn, which, is quite impossible, it is not so unfavorable to that of grass, which, saving that the pastures and meadows are spongy and mossy at bottom, is sufficient for the purposes of sheep-husbandry, the chief form of agriculture in the island. Now it is the indirect action of these conditions, which most determines the sanitary condition of Iceland, since the direct effect even of the worst geognostic localities goes for nothing; as Dr. Schleisner expressly states, that those who live in the least volcanic portions of the island, and those who live and breathe in the atmosphere of suffiones and solfataras, are equally healthy or unhealthy.

Habitations.—The want of wood, as well as of coal exerts a most injurious influence, especially in its connexion with the general character of the dwellings of the people. Low, straggling, dark, and ill-ventilated; an Icelandic house in 1850, is just as it was in the middle ages, or the time of the sagas (annals;) a time which the modern Icelanders are, perhaps more unwilling than unable to improve upon. The door serves for a window at least as far as ventilation is concerned; and it generally does for a chimney as well. The walls being composed of turf and stone, are rarely weather-proof; whilst the roof lets in the rain, and the floor soaks it up. The same room generally serves for all the uses of the whole family; not only for the human part of it, but frequently also for the sheep, which are inclosed with them during the severest part of the winter.

Fuel—Of wood, none grows in the island; and to the great disgrace of the Danish government, none is allowed to be imported except by Danish vessels; so that none arrives direct either from Norway or from America. The discomfort and dis ease arising from this want (a natural want aggravated by an artificial restriction,) are greater than that which springs from any other cause. The coal that is imported is chiefly consumed in forges and furnaces; whilst the turf of a bad sort, and generally impregnated with sulphur, is for the most part consumed by the inhabitants of the towns. In the country, cow-dung and sheep-dung, caked and dried, form the staple fuel, ill-smelling of themselves, and rendered worse by the wool and hair with which they are intermixed. Yet even this, which, by the way, is not unknown in the agricultural districts of England,* is far from the most exceptionable of the Icelandic fuels. In Westmannoe, the bones and refuse of fish and sea-fowl serve instead of wood and coal; and this in low unventilated houses, with closed windows, and without chimneys. The poverty stricken inhabitants are here exclusively fishers and fowlers; and when they take any of the numerous sorts of gulls and ducks with which their island abounds, the breast is dried for eating, the head, feet, wings, giblets, and bones for burning. The stench of this is insupportable. For Westmannoe, however, it is the ordinary fuel throughout the year; in Grimsoe, for a couple of months only.

Clothing.—With the exception of what is worn on the feet, and in respect to every essential but the important one of cleanliness, the clothing of the Icelander stands in contrast with his household accommodation. It is well-suited to the climate, and does equally for summer and winter. With the females, too, who retain the old costume, it is more picturesque than with the men. In both, however, it is composed of wool, from first to last; the shirt as well as the stockings; the under-petticoats as well as the upper. It is of *black* flannel, also, so as to accumulate dirt without showing it; set off, when otherwise than plain, with silver ornaments; and washed, when at all, as often in urine as with soap, Stays, against which so much is written in England, are worn in the towns only. Gloves are equally uncommon. The shoe however which is the worst part of the whole dress, is of untanned sheepskin; and thus it easily becomes soaked with wet, so as to bring the etiology of half the complaints of the country under the category of *wet feet*.

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* *E. g.*, in Lincolnshire.

The neglect of personal cleanliness applies as much to the skin as to the clothing. The use of soap is rare, that of the bath rarer; a matter in which the modern Icelander would do well in adhering to antiquity; since both in the heroic and the republican periods of their history their ancestors used to bathe both before meals and after journies and dress their hair as well—another point overlooked by their descendants.

Like the emperor Julian, the modern Icelander may describe the black and shaggy *populousness* of his head and beard.

Let no man think that the supply *always* creates the demand, or that good things are never thrown away because they are common. No one uses the bath in Iceland. Yet it is a country of natural baths; hot, tepid and sulphureous; of every degree of odour and of temperature. Whilst in London we pay for both the heat and the fluid, the natural structure of Iceland supplies both spontaneously.

Food.—Without corn, without fruit, and without the more common esculent roots the Icelander tastes little either of bread or vegetables. Neither is meat his usual food; when used at all, it is generally dried or smoked mutton, smoked or dried oftener than salted. Beef he takes but rarely; and pork seldomer still. Against the latter food he entertains the prejudices of the Jew and Mahometan; and abstains from it as much through a feeling of repugnance as from its scarcity. A taste, however, for the more exceptionable aliment of horseflesh still survives in some of the inland districts: we say *survives*, because it is a relic of the good old times of their sea-kings and heroes, who, in the days of their paganism looked upon it as luxury, and after their conversion so far hankered after the flesh-pots of Egypt, as to require the enactment of several stringent laws against so barbarous a gratification, bad in itself, but worse from smelling of heathendom. That this food has a deleterious effect upon the system, may be inferred from the general opinion that those who eat of it (and it should be added that it is only the poorest of the poor who do so) betray the nature of their food by their weak and emaciated frames, and cadaverous aspect.

This long list of negatives leaves as the chief elements of Icelandic food, the following—dried fish of a variety of kinds, milk and butter in every degree of sweetness and sourness, sometimes by itself, sometimes with tallow and train-oil, curd, Iceland moss, a kind of pulse (*iridea edulis*), and lastly, the flesh and eggs of numerous kinds of ducks and gulls. Tea and spices are uncommon; and even salt is used in very insufficient proportions. Coffee is pretty general. So also, is tobacco; more, however, (as is the case with the Kirghiz tribes of Asia,) in the shape of snuff than for smoking.

Employments.—From the 2d of February to the middle of May is the season of the fisheries; from May till Autumn the farming time; in each of which there is the exposure of an out-of-door life, and each of which is, for the majority of the Icelanders, a joint occupation; that is, in the winter the peasant becomes a fisherman, and leaves the country for the coast, whilst in the summer the fisherman turns farmer, and returns from the coast to the country.

Here ends the list of the general hygienic conditions of this remarkable country; on the favorable side of which we have an insular climate, the absence of any natural centres of malaria, and a locality so isolated as to place the Icelanders, in respect to *imported* diseases, in a preeminently favorable situation. *Per contra*, we have the important drawbacks of insufficient food, insufficient fuel, unwholesome domestic arrangements, atmospheric exposure, an aliment almost wholly animal and oleaginous, and an inefficient medical organization.

What are the fruits of all this, as tested by the prevalence or absence of certain forms of disease?

Diseases common elsewhere, but rare or wanting in Iceland.—We will first consider the negative phenomena.

Ague.—Both in Iceland and in the Feroe Isles, ague is almost wholly unknown. Where cases occur, the patient is generally a Dane. and even then (according to the evidence of more than one of the Icelandic practitioners) the recovery is more speedy than elsewhere.

Syphilis.—This also is wanting, or nearly so. Where cases occur, the patient has generally brought his disease from Denmark, France, or Holland. When thus imported, it takes root, but only partially, and for a time. Thus, in 1756 it found its way to the weavers and wool-spinners of Reykjavik. In 1763, however, it was a rare disease; and by 1774 it was extinct. In one or two other localities, it has similarly been introduced, and similarly died away. What applies to syphilis applies to gonorhœa also.

Struma (*Kjertelsyge, gland-sickness*) *King's-evil.*—Out of 2600 cases, Dr. Schleisner found only one of struma; a form of disease not wholly unknown in the island, but, when it occurs, found in one or two districts only. In two families at Reykjavik, Dr. Schleisner discovered cases of strumous infants. In the district of Fljótsdalsherád, he found several; elsewhere none.

Phthisis.—The evidence as to the extreme rarity of phthisis is unanimous throughout Iceland; and that this rarity is real rather than apparent, and that cases are not found simply because they are non-existent rather than overlooked, is shown by the following extract. Dr. Schleisner says: "I carefully stethoscoped every patient who complained of even the slight chest-symptom, and amongst 327, almost all suffering from chronic complaints, I found only three with *phthisis*, one of whom was of Danish extraction." In the Feroe Islands, phthisis is as rare as in Iceland; whilst out of Iceland, the Icelander becomes liable. "In this respect, one observation deserves notice, viz., that the Icelanders who come to Denmark are pretty frequently (*temmelig hyppigt*) seized with the symptoms of consumption; especially after an attack of the measles."

Amongst the minor complaints, the following are noticed as being rare: *chlorosis*, although amenorrhœa is common; and *delirium tremens*, although drunkenness is one of the vices of the people. The teeth, too, of the Icelanders are remarkably free from caries.

Diseases, rare elsewhere, but common in Iceland. These are the set-offs to the comparative absence of syphilis, struma, ague, and phthisis.

Hydatids. Although this malady is called, by both the Danes and Icelanders, *hepatic disease* (*Leversygdom*, D.; *Lifrarveiki, Lifrarbólga* I.), as if the peculiar local lesions of the *liver* were its essential elements, Dr. Schleisner, in conformity with the views of Drs. Thorstensen, and Thorarensen, is probably right in looking upon it, not as a simple liver complaint, but as a general hydatid disease (*hydatidesygdom.*). Such *post-mortem* examinations as the very unfavorable state of medical science in Iceland allow, show that in most cases where there are hydatids in the liver, there are hydatids elsewhere; this even in the rarer situations, such as the kidney, and the subcutaneous tissues. In its symptoms, the hydatid disease of Iceland differs but little from the rarer cases occurring elsewhere. In respect to its ratio to other diseases, it formed, out of Dr. Schleisner's statistical list of 2600 cases whose maladies are enumerated, no fewer than 328, or *one eighth*; whilst of cases that came under the Doctor's own observation, it formed 57 out of 327, or *one sixth*. It is more common in the country than on the coast, and more frequent in some districts than others. In the parish of Sandfell there were two or three sufferers in each family. In respect to sex and age, the following table gives an analysis of 385 cases, i. e. of the 328 in Dr. Schleisner's list, and of the 57 that came under his personal observation:

Age.	Males.		Females.	
	Number.	Per centage.	Number.	Per centage.
0 to 1	0	0·0	0	0·0
1 " 10	13	7·5	13	6·1
10 " 20	18	10.4	14	6·6
20 " 30	22	12·7	39	17·9
30 " 40	38	22·0	47	22·2
40 " 50	36	20·8	64	30·2
50 " 60	27	15·6	22	10·4
over 60	19	10·9	13	6·1

Spedalskhed.—This has been so fully noticed in our last Number, that the only further notice of it required is, that it is an Icelandic as well as a Norwegian disease.

Trismus neonatorum (*Mundklemme, D.*; *Ginklófi*, I.)—A few figures give us the measure of the dreadful frequency of this disease. From the fifth to the twelfth day after birth, is the *trismus*, *mundklemme* or *ginklófi* period. Fatal everywhere, it is most so in the island of Westmannoe and the parts opposite, localities already mentioned unfavorably. Here, for an average of the infants born alive during the last twenty years, the proportion of those who die within the aforesaid period (from the fifth to the twelfth day) is as high as *sixty-four per cent.!* No wonder, then, that the population does not increase. It even diminishes.*

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* There is a remarkable coincidence between these phenomena and those which are detailed by Mr. Maclean, in his account of his Visit to St. Kilda (one of the Western Hebrides) in 1838. The population of this island, like that of Iceland, was diminishing rather than increasing: and this in consequence of the enormous infant mortality,—*eight out of every ten* dying between the eighth and twelfth day of their existence! The great if not the only cause of this fatality, is the filth amidst which the people live, and the noxious effluvia which pervade their houses. Their huts, like those

Of the minor ailments, rheumatism, hysteria, pyrosis, amenorrhœa, and skin diseases are the commonest.

We have thus concisely laid before our readers the chief results, both negative and positive, of Dr. Schleisner's inquiries. Although few, they take a definite and prominent form; and it may truly be said that they are not without a serious import in medical philosophy. They are just the sort of facts that should stimulate to further inquiry. They are not exactly what we should expect *à priori;* but yet, it cannot be for a moment imagined that they are unconnected with the social and hygienic conditions which accompany them. That impure air and unwholesome diet increase mortality, is a truth that we want no Danish commissioner to tell us of; but that, in a country of prolific marriages, and with a people free from the scourge of phthisis and syphilis, there should be a decreasing population; that this decrease should be chiefly referable to the murderous mortality amongst infants; and that the disease which thus carries off within a few days full *two thirds* of all the children born in certain localities, should be one comparatively rare elsewhere, are facts in the etiology of diseases which require due prominence and consideration. Upon such points each reader will probably take a view of his own. Some may, like Dr. Schleisner, give a *maximum* value to the extent to which phthisis may be a sequence of syphilis, and so argue as to the rarity of the one from the absence of the other; whilst others may see only the preservative effects of an exccessively oleaginous aliment. Lastly, it may be held that the mortality of the infants, by which the weakly are not allowed to live, anticipates the diseases of the adult. In any case, we have matter for speculation; and, what is better still, *data* for giving our speculations a basis on induction.

The extent to which every Icelander is an historian and archæologist,—founded upon the two other facts, of a generally diffused education, and a language which has changed from its ancient form less than any other known tongue,—has enabled the medical inquirer to give a fuller account of the epidemics of Iceland than of any other part of the world. From the year 1306 downwards, we may consider the accounts as founded upon contemporary annals; and these, although not specially medical, may be relied upon for the chief features, even in a medical history. A brief abstract of them forms the complement to the notice of the diseases of the present period.

A.D. 1306. A disease which some called *pox* (*kopper**). It attacked persons under 40, and in some places destroyed whole families.

1310. General sickness (*sótt**) followed by a pox (*kopper*). Diseases called *qverkasótt* and *stingasótt*. The sick rotted away (*raadnede istykke*). Mortality great.

1313. A *hettusótt* (*sickness*) a term of unascertained meaning.

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of the Icelanders, are small, low-roofed, and without windows; and are used during the winter *as stores for the collection of manure*, which is carefully laid out upon the floor and trodden under foot to the depth of several feet. On the other hand, the clergyman, who lives exactly as do those around him in every other respect than the condition of his house, had a family of four children, all of whom were well and healthy; whereas, according to the average mortality around him, at least three out of the four would have been dead within the first fortnight.—Ed.

* These words are used with such latitude, that, for the early period, it is best to leave them untranslated. Perhaps the nearest equivalents are *smallpox* and *fever*.

1347, 1380, 1384. *Kopper* and *sótt.*

1390. *Sótt.* Mortality amongst cattle.

1402. "An infectious disease (*smitsótt*), came with clothes in a ship from Norway, and the people died within three days. The houses became empty; and although twelve or fifteen carried a corpse to the grave only four or five came back alive."*

1403. The same; called *the Great Plague* and *the Black Death.* Destroyed two thirds (?) of the population.

1423. Famine and sickness.

1430. *Kopper;* mortality 8000.

1490. "In an English ship a great plague came to the land. In many churches three or four were buried daily; and although six or seven carried a corpse to the grave, only three or four came back."* This lasted till 1495.

1511. *Kopper;* mortality in Nordland 400.

1528. *Sárasótt.* This term occurs only once again, and is unexplained.

1541, 1545, 1551. General sickness (*sot*).

1555. *Kopper*—scarcity.

1574. *Kopper.*

1580. *Krefdubóla—engingarsót;* the first a sort of pox (*kopper*); the latter, probably, some form of *angina.*

1586, 1590. *Sótt* and *kopper.*

1592, 1597. Dysentery.

1602. *Sótt*—scarcity.

1604. Dysetery.

1613. *Landfarsótt* (?)

1616. "In an English ship, a man came with smallpox (*kopper*), and introduced the sickness. Many died, especially persons under 30. Mortality in the parishes of Ingjaldshol, 70; Arnes-Syssel, 300; Hunevand's Syssel, 150; Skagefjord-Syssel, 200; Ofjord-Syssel, 200. Besides this, there was another disease, *Tak* (?)."

1617. *Kopper.*

1625, 1627, 1632, 1636, 1641. *Sótt* and *kopper.*

1644. Measles; introduced, for the first time, from Denmark. The disease spread over the whole country. In Skagefjord-Syssel alone, 106 died.

1648. Famine.

1650, 1652, 1655, 1657-8. *Sótt* and *kopper.*

1669. *Flekkasótt*—scarlet fever (?).

1670. *Hlaupabóla*—variola spuria (?)

1671-72, 1675-76, 1690. *Sótt* and *kopper.*

1694. Measles; mortality moderate.

1695. *Sótt;* considerable mortality.

1697. *Hettusótt*—angina parotidea (?); famine.

1704. *Sótt.*

1706. *Quefsótt.*—Cough sickness, influenza (?)

1707. An Icelander went abroad and died. In the spring his clothes and a chest of linen were brought to Orebakke. His sister wore one of his shirts, and died of smallpox. In this way the sickness spread over the whole land. It was 34 years since smallpox had last been on the island. Many old persons who had it before, took it afresh. However, it chiefly attacked the young; especially males. Sometimes women had to carry the corpses to church. The bishop himself had to saddle his own horse. In the bishopric of Skalhott 12000 persons died, in Norland 6000, in all 18000, so that the number which remained was about 34,000.* Most of those who suffered from *Spedalsked* died of this complaint. So did old men, and women with child.

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* This seems the semipoetical manner of expressing the extent of a mortality. We must remember that Dr. Schleisner, for the earlier periods, translates the *sagas* (annals) literally.

1708-9. Spread of the same.

1714. *Landfarsótt* (?)

1719. Influenza (?). The Icelandic name is not given here.

1723, 1730, 1735, 1736, 1738. *Sótt* and *Landfarsótt.*

1742. Small-pox, introduced by a Dutch ship, but not violent.

1747. Fever. Mortality in Rangervalle-Syssel, 200. *Febris petechialis* (?)

1751, 1757. A seven year's famine; mortality 4200.

1758, 1759. *Sótt.*

1762. Mild Smallpox. *Landfarsótt.*

1763. Spread of the smallpox.

1767. *Sótt.* Introduced from abroad; mortality considerable.

1771. Hooping-cough amongst children, *Taksótt*† amongst adults.

1773. *Taksótt.*

1774. *Qvefsótt* (Influenza).

1776. *Flekkasótt* (Scarlatina ?).

1778, till 1785. Famine and sickness. *Taksótt;* so fatal in some districts as to take off two thirds of the *new-born children.* The famine, too, was one of the severest known in Iceland. The use of horseflesh was more general than it " had ever been since the land became Christian." Besides this, men ate barley-meal mixed with straw, and boiled in salt-water; also fresh dog-fish, and many sorts of sea-weed. In Hola-stift, 10 are registered as *dead from hunger.* Those who first suffered from the famine were the eaters of horseflesh.

On the 29th of June, 1783, one of the most violent volcanic eruptions that had ever occurred, broke out in the Skafta-fjells Jőkul. The shower of ashes destroyed all the grass.

In 1784 and 1785 the famine reached its height. The living horses ate the dead. Sheep ate each others' wool. According to the account of the district of Syssel, there died in the winters of 1783 and 1784, of—

Oxen . .	11,461	out of 21,457
Sheep . .	190,488	„ „ 232,731
Horses . .	28,013	„ „ 36,406

After the famine, the smallpox raged till 1787.

1788. *Taksótt.*

1791. *Taksótt*—measles (?)

1792-93. Hooping-cough.

1797-98-99. An epidemic, particularly fatal to children; either measles or scarlatina.

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* Dr. Schleisner remarks, that there is some discrepancy amongst the different annalists in regard to these numbers.

† *Tak* is translated by the Danish *sting*, which is the English *sticth.* Hence, in its limited sense, it means *pleurodynia* and *pleurisy* Probably, however, in many cases it denotes bronchitis, influenza, and pneumonic symptoms in general.

1801. Scarcity, scurvy and dysentery.
1803. Fever and scarcity.
1804. *Landfarsótt.*
1805. Influenza.
1811. Scurvy, dysentery, typhus, cholera.
1812-14. The supply of corn prevented by the war; scarcity and dysentery.
1816. Influenza.
1819. Epidemic bilious fever.
1820-21. Croup, of which 294 died; catarrhal fever.
1825. Influenza.
1826. Hooping-cough, introduced by a vessel from Flensburg.
1827. Scarlatina amongst men and women; the distemper amongst dogs; the cow-pox amongst cows. "Many milkmaids became infected; and hence the cowpox was introduced amongst men and women, even those who had had the natural smallpox.
1828. Typhus, croup, urticaria, and varicella.
1829. Typhus and croup.
1831. Indian cholera and dysentery.
1833. Ditto.
1834. Ditto. Cholera ceases.
1834-35. Influenza, fever, and pulmonary inflammations. *Angina parotidea* epidemic, but not dangerous.
1836. Typhus, varicella, croup, and scurvy.
1837. Typhus and croup. In certain parts, jaundice and *angina parotidea* were epidemic; in others scurvy. Cowpox amongst the cows; whereby, however, only two milkmaids were infected.
1838. Typhus, jaundice, influenza.
1839. Hooping-cough and smallpox. This latter introduced from a French fishing-vessel.
1841-46. Typhus and influenza.
1846. Measles; introduced from Denmark.

Such is the extent to which a land, capable, under proper cultivation and with but moderate commercial restrictions, of maintaining double its present population of 50,000, suffers, and has suffered, from disease and poverty. Such, too, are the phenomena (especially that of the great mortality amongst newborn infants) which determine a *decrease* of population in a land of prolific marriages. Much as there is in the way of disease, there is also much in the way of remedy. As truly as the eruptions of Hecla are *beyond* the control of human foresight, so truly are such diseases as the *mundklemme* of the Westmannoe *within* it. And there is good reason to believe, that the remediable elements of the mortality of Iceland will be met by appropriate measures. The commission itself is a sign of this. The restriction upon imported timber and fuel is (as we hear) likely to be abolished. The medical staff of the island will undergo the improvement which it demands; its present state being worst among the bad—bad on the score of insufficiency, as regards the number of educated and legitimate practitioners,—and bad in respect to the qualifications of their illegitimate substitutes, the far more numerous class of the two.

We are unwilling to take leave of this remarkable island, without placing the moral and intellectual condition of its population in a strong and advantageous contrast with its physical. Without a system of schools, without a single element of legislative compulsion, every Icelander is not only so far educated as to read the works of the present century, but so much of a scholar as to be familiar with the literature of his country from the earliest times. The love of reading is, with the Icelander, what the love of art was with the ancient Atheniam; and the only stimulus to the acquirement of the power, is the necessity for every one who is a candidate for confirmation being able to read and write.

On the other hand, the intellectual development is literary and archæological rather than scientific. With little care for the exact sciences, with as little tendency to the study of nature, the Icelander, proud of his language, proud of his ancient literature, and, in most cases, overburdened with a narrow and exclusive feeling of pedigree, is suspicious of innovation, conservative of old errors, retrospective rather than prospective, and (to use Dr. Schleisner's own expression) "one who lives more in the past than in the present." The fatal consequences of this blind conservatism have been but too apparent in the medical history of the country.

Art. XII.

Medico-Chirurgical Transactions. Vol. XXXII.—1849. 8vo, pp. 192 With Three Plates.

It is not for us to determine whether the extreme diminutiveness of the offspring of the Society for the year 1849 be due to some abatement in the productive energies of its Members, or whether the Council and Editor who have officiated at its birth have resorted to means that have resulted in these meagre dimensions. Certain it is, that the present volume has dwindled to a bulk scarcely equal to that of the least of its predecessors, and not exceeding one half or one third of that of some of them; nay, even falling short of some individual papers in the number of its pages. We do not, however, altogether regret this curtailment of its size; conceiving, as we do, that some of the treatises published in recent volumes, on account of their length and the minuteness of their details, have been ill-suited to furnish subjects for discussion at the meetings of the Society, and have been fitted to appear rather as independent works, than as contributions to its Transactions. To maintain the high character of the Society, it is requisite that papers which find a place in its printed records should be select rather than numerous, concise even when comprehensive, and not lengthy or tedious through neglect of fitting condensation.

With these preliminary remarks, we proceed to give an analytical sketch of each of the thirteen brief articles which compose the volume before us.

I. *On the employment of Nitrate of Potash in Acute Rheumatism, &c.;* by W. Basham, M.D., Physician to the Westminster Hospital.

The author begins his paper with the remark, that there is no novelty in the administration of nitrate of potash in acute rheumatism. Dr. Brocklesby was among the first who used it largely and recommended it.

We proceed to examine the grounds upon which Dr. Basham introduces it afresh to the notice of the profession, consisting in part of theoretical or, it may be, scientific reasoning, and in part also of the success which he has obtained by its means. He gives, at the outset, the results of three analyses of blood, taken from patients labouring under this disease, which indicate that, on the average, the quantity of fibrine is more than double its normal amount; while the salts are deficient, by rather more than a fifth of their weight in health. This deficiency of the saline ingredients in the blood, he takes as the basis of the therapeutic action of nitrate of potash; not sufficiently adverting, as it seems to us, to the fact, that he is seeking to augment their quantity by the introduction of a salt which is not a constituent of that fluid in its healthy state. (See Simon's Chemistry, vol. i, p. 232.) This circumstance, however, should be borne in mind, while we admit his assumption (page 2), that the treatment by nitrate of potash contributes to restore the balance of the saline ingredients. The further assumption, that it contributes to control the tendency to fibrinous deposition, seems suggested by, and based upon, a single observation of Dr. Stevens (referred to at page 3), where blood, drawn from a person who suffered much excitement after taking an ounce of nitre by mistake for Glauber salts, was completely florid, and remained as fluid as if the nitre had been added out of the body. Yet, if the inference be drawn from this single example (and it is to be remarked, that neither Dr. Christison nor Mr. Taylor mentions permanent fluidity or a florid colour of the blood as observed in cases of fatal poisoning by nitre), that the medicine, when administered in rheumatism, prevents the deposition of fibrine by destroying its property of coagulating,—this inference is nagatived by Dr. Basham's own statement of the actual results which he observed. Thus, from a patient labouring under acute rheumatism, *who* had taken two ounces of nitre dissolved in two quarts of water, daily, for three successive days, some blood was taken, which formed a firm coagulum, and was slightly buffed; and blood, drawn again on the ninth day, after the nitrate of potash had been resumed for two days, presented a perfectly separated clot. (pp. 7-8.) We are not told that the colour of either of these specimens was unusually florid; so that, in two most remarkable physical particulars, they differed from the blood observed by Dr. Stevens, and prove that the salt, administered medicinally, does not modify the character of the blood in such a manner as his observation might lead us to expect.

Dr. Basham confirms the important fact, that—

> "One, two, even three ounces of the nitrate, freely diluted, may be taken in the twenty-four hours in cases of acute rheumatism; and, in the majority of cases, without producing any obvious effect on the force or frequency of the pulse, the integrity of the digestive functions, the state of the abdominal organs, or even upon the quantity of urine excreted." (p. 5.)

The urine, however, always acquires a high specific gravity: 1·026—1·040, dependent, in great measure, on the presence of the salt. Copious perspiration is the most frequent apparent effect; but this is so common in acute rheumatism, that it may be doubtful how far it is to be referred to the use of the nitre, which is not constantly followed by any remarkable increase in this respect.

It is emphatically stated (at page 8), that the employment of nitrate of potash is not intended to supersede the use of other remedies (such as calomel, opium, antimony, and colchicum), whenever they are indicated. It had before been mentioned (at page 2), that its office is to retard the progress of inflammatory action, and thus to gain time for other remedies to effect the diminution of the excess of fibrine present in the blood, as well as the destruction of the rheumatic element. It is necessary to point out this limitation of its virtues assigned by the author, lest those who resort to it on his recommendation should feel disappointment at its not exercising powers which he has not assigned to it. The task, however, of estimating the efficacy of this individual remedy becomes very difficult, from its always having been associated with other powerful curative means in Dr. Basham's practice. We can only give the general results obtained with nitre, administered internally, and also, in several instances, freely applied externally, in addition to other remedial means; and leave our readers to judge of the amount of success due to this complex treatment. It appears, then, that the average duration of cure, dating from the time of admission to that of leaving the hospital, was, for fifty-six males, 31·1 days; and for twenty females, 34·15 days: and that, besides these cases, there were three in which the disease was fatal,—in two to males, and in one to a female. We think it, however, only fair to the author to mention the conclusion, which his observation of the cases in detail enabled him to form,—a conclusion which cannot be made equally apparent in summaries of treatment, such as those contained in the table. He writes (at page 6), that the internal use of the nitrate relieves, in the most marked manner, the swelling, pain, and heat of the joints in this disease; and that this alleviation has, in certain cases, been observed to take place irrespectively of any other measures.

The external application of this salt was suggested by an observation of Mr. Gulliver, in his edition of Hewson's works, that the efficiency of saline medicines in inflammation probably depends on their correcting the disordered state of the blood, by preventing the aggregation of the corpuscles, and consequently destroying their tendency to separate from the fibrine, and to accumulate in the minute vessels; and that hence the application of a solution of salt to inflamed parts might prove a very useful and simple remedy. The method of employing the nitrate of potash externally is as follows. If the hands, elbows, knees, or feet are the seat of inflammation, gloves or caps are made of spongio-piline to fit the parts; if a greater extent of surface be involved, a portion of spongio-piline is cut large enough to envelope the entire surface. The spongy surface of the epithem is first moistened freely with water, and any superabundant fluid squeezed from it; nitrate of potash in powder is then freely and plentifully sprinkled over the moistened surface, or rubbed in, to secure its solution and the thorough impregnation of the epithem; it is then applied to the inflamed part, and lightly secured with a roller. To test the efficacy of the salt thus employed,—

> "Cases were selected, in which both hands or two distant parts were in a state of rheumatic inflammation Each hand was placed in a glove of spongio-piline, one was merely moistened with hot water, the other saturated with nitrate of potash. In every instance the local inflammation yielded to the saline remedy, while the other hand continued as if no local remedy had been employed. Eight different cases afforded exactly similar results." (p. 11.)

In Simon's Chemistry (vol. i, pp. 252, 278), no remarkable diminution of the saline ingredients of the blood is mentioned as characteristic either of inflammation generally, or of acute rheumatism. We could have wished, therefore, that the author had been at further pains to ascertain whether the deficiency, which he observed in only three observations, be general and essential, or occasional and unimportant. Nevertheless, we feel indebted to him for instituting an investigation into the actual value of a therapeutic agent in so important a disease as acute rheumatism.

II. *On the causes of the endemic Puerperal Fever;* by C. H. F. Routh, M. D.

The author's remarks, it is stated at the commencement of this paper, are to be regarded as *applying especially* to Vienna, although it is believed that similar causes are brought into operation in other countries, and might as effectively be combated.

The facts in which they originated may be briefly stated. It appears that there are two divisions in the Vienna Lying-in Hospital, of which the first is open for the instruction of medical men and midwives; the second, for that of midwives exclusively. The general arrangements are similar in both divisions, but the wards of the second are neither so large nor so airy as those of the first. Nevertheless, it was found that the mortality in the first division was very much the greater, and sometimes reached a fearful amount. Thus the average monthly number of deliveries being 275 in each division, the ordinary number of deaths in the first was 30 per month, or one in 9·16 deliveries, which occasionally rose to 70 per month, or rather more than one in 4 deliveries; while, in the second division, the ordinary monthly mortality was about 8, or one death in 34·37 deliveries, which sunk occasionally to 3, or to one death in 91·66 deliveries. In one particular year, indeed, out of some 3000 cases delivered, about 500 died in the first division; while in the second division, out of the same numbers delivered, the deaths frequently did not exceed 40. (p. 28.)

The frightful mortality in the first division, as compared with the second division, became at last so notorious, that many females refused to become patients in the former; and public opinion compelled the Austrian government to make it a subject of inquiry. The commission appointed for that purpose came to the conclusion, that the prevalence of the fever was due to the excess of students in attendance, and the number of these was reduced from forty to about thirty, but without advantage. A presumption arose in the minds of some, that the fever was excited, in the first instance, by the rough manipulations of men midwives as compared with those of women; but further consideration showed this opinion to be groundless.

Under the heads of contagion and infection various arguments are adduced, to show that the excessive mortality at Vienna could not be referred to the introduction of typhus fever; nor to the conveyance of a contaminating poison from one patient to another by the person or clothes of the attendants, nor to its more direct communication from the sick to the unaffected. The general fact of the occasional origin of puerperal fever in some matter or miasm communicated by those who are attending upon patients labouring under other diseases, or under puerperal fever itself, is admitted by the author, since he says:

"That the contact of fomites, the direct or indirect communication with persons affected with puerperal fever; that some influence, carried either by the patient herself or her attendants, from other contagious diseases, such as erysipelas, typhus, and other low fevers, has, in many cases, given rise to puerperal fever among lying-in patients, is a fact that admits of no doubt." (p. 31.)

He must therefore be understood as maintaining only that, of the peculiar fever at Vienna, and of that of some similar institutions at Prague and Paris, some other explanation must be sought. His arguments seem indeed to show that the fever under discussion, having the origin presently to be assigned to it, is less capable of conveyance through infection than other forms of the same malady. We shall give here the conclusions arrived at regarding the causes of this particular fever; the beneficial results that followed the adoption of precautions based upon them; some particulars relating to the symptoms and post-mortem appearances; and the general rules which should guide accoucheurs under all circumstances, as derived from the lamentable facts here detailed. The author thinks himself justified in concluding that—

1. The puerperal fever of Vienna may be looked upon as an endemic fever.

2. That it is produced by the direct application of poisonous cadaveric matters, introduced by the hands of the male obstetricians in attendance. (The midwives made no post-mortem examinations or dissections, and studied anatomy by means of a lay figure.)

3. That the cadaveric matters derived from the bodies of persons dead of typhus, erysipelas, puerperal or other low fevers, are peculiarly dangerous; but that there is no evidence to show that ordinary cadaveric matters may not produce it.

4. That it does not appear to be either contagious or infectious. (p. 38.)

Dr. Semelweiss, acting on these conclusions, recommended all students frequenting the division not to handle dead matter, or if they did so, he forbad them to make an examination of lying-in women till the following day. He directed all students who attended the practice of the division to wash their hands in a solution of chlorine, prior to and after every examination made on the living subject. The result of these precautionary measures was, that the number of deaths at once fell to seven per month, or to the usual average of the second division. (p. 36.)

In this malady the feverish symptoms usually occurred on the second or third day after labour, but in some instances not till the seventh or fourteenth day. The fatal result was generally deferred to the fourth or fifth day after the seizure, but sometimes occurred within twenty-four hours. A diarrhœa generally preceded the attack; sometimes, but rarely, the patient was costive. Then followed languor, weakness, and rigors, a pulse from 120 to 139 in a minute, sometimes 160, and very weak; anxious countenance, pain about the uterus, heat, dry tongue, and thirst followed. The lochia and milk were unaltered in quantity and appearance; the intellect was generally clear to the last. Large violet maculæ sometimes occurred on the extremities. The more marked local symptoms were those of peritonitis, but the pain disappeared a short time before death.

After death there were signs of arachnitis in a slight degree, occasionally endocarditis, very generally pericarditis. Extensive peritonitis with sero-purulent effusion. The uterus was much enlarged, softened, tearing easily, with pus in the veins, especially near the Fallopian tubes. The bodies underwent speedy decomposition; the blood was generally liquid and very dark.

A postscript informs us, that whereas in 1846 there were 459 deaths, in 1847 the number fell to 176, and in 1848, after the precautionary measures were fully carried out, it sunk to 45 in about 3300 deliveries in each year.

The precautions, adopted for all times and climates, that flow from this melancholy history, are that—

> "1. Accoucheurs should, as much as possible, avoid making autopsies, and all contact with cadaveric matter.
>
> "They should never attend any woman in labour, in clothes which may possibly have been infected; and, if compelled to handle cadaveric matters, or poisonous secretions of living persons, should effectually disinfect the hand by means of chlorine water before entering the lying-in bed-chamber."

We conceive that Dr. Routh is eminently entitled to the thanks of the profession and of the public, for the lucid and able manner in which he has brought forward the particulars of this melancholy and very instructive history.

III. *Case of Cysticercus cellulosæ in the anterior chamber of the human Eye;* by W. Mackenzie, M.D.

This is an interesting contribution to ophthalmic surgery. The patient was a delicate young woman, in her seventeenth year, and the hydatid appeared in the eye immediately after the application to it of a poultice of rotten apples for the relief of some previously existing inflammation. The judgment and skill evinced by the author in effecting the extraction of the living animal, and the complete restoration of the organ, are highly creditable to him.

IV. *On the minute anatomy of the Lung of the Bird;* by G. Rainey, M.R.C.S., &c.

Mr. Rainey sets out by laying claim to priority in demonstrating that the membrane and epithelium, which line the bronchial tubes in man, are not present also in the air-cells. The paper, wherein it is sought to establish this anatomical fact, is published in the 'Transactions of the Medico-Chirurgical Society' for the year 1845. It appears, however, that his former arguments have not produced universal conviction; since it is still maintained by some authors, that the air-cells are lined with clinical epithelium. We need not follow Mr. Rainey in pointing out the sources of error which have misled other observers, but shall touch upon one or two of the evidences which he here draws for comparative anatomy in support of his original conclusion.

The evidence furnished by the examination of the bird's lung is, he tells us (at page 51), of a more satisfactory kind than can be obtained by that of the human lung, and more susceptible of a rational proof. It has been observed that the atmospheric air, which enters the bird's lungs, is not received into regularly-formed cells, but that it passes into minute interstices between the vessels, the average diameter of which is about [illegible] of an inch, and some are even smaller. Now each epithelial cell which lines the bronchial tubes of a pigeon, he found by measurement to be $\frac{1}{800}$ of an inch in length, and about $\frac{1}{3300}$ of an inch in breadth; so that a comparison of these dimensions shows that the air-cells in the bird are several times smaller than the individual particles of epithelium which are considered by some to line them; hence the idea of the ultimate subdivision of the air-passages in birds having a lining of ciliated epithelium is seen not only to be incorrect but absurd. It is stated a little further on, that the areation of the blood, in the lung of the bird, is carried on without the necessity either of ciliated epithelium or basement membrane, but simply by the action of the inspired air upon the blood in the vessels, with no other membrane intervening but their coat. (pp. 51-2.) The lungs of mammals, intermediate between the bird and man in the energy of their respiratory functions are brought under examination, and made to furnish intermediate links in the chain of harmonising analogies to be traced between these two extremes. Thus the kangaroo, the rat and mouse, the hare, the rabbit and dog, the sheep and ox, all give the testimony of their lungs in support of the argument, that air-cells want the lining proper to air-tubes. We must excuse, then, if we cannot but regret, that in a paper of considerable merit, there is, as it seems to us, a tone of authority and of disrespect, for the convictions of others, inconsistent with the modesty of philosophy and prejudicial to scientific progress.

V. *An extraordinary case of Lesion within the Uterus, with partial reparation before birth;* by J. D. Jones, Esq., M. R. C. S. E.

A lady in her first confinement had, from the ample size of the pelvis, a more than usually speedy and easy labour, and was safely delivered of a male child of average size. The attendants were somewhat frightened at observing on the back of the infant, an extensive open wound, reaching from the third dorsal vertebra, across the scapula, along the back part of the humerus, to within an inch of the elbow. A large proportion of one part of the wound, with the exception of a nipple-like process near the vertebra, was already cicatrized, so as to negative the idea of the wound having been produced during labour; and other parts had a healthy granulating surface. The skin and integuments only were implicated, the muscles not being in the least affected. How came this wound?

It appears that the mother, during the whole term of pregnancy, enjoyed more than her usual health, and took much walking exercise. About six weeks before her delivery, when running down stairs, she tred upon a cat, and made a sudden spring to the bottom (five or six steps,) alighting on her feet. A severe shock was felt at the time, and slight faintness. Rest on a sofa and a glass of wine soon rallied her; but next day she had a slight sanguineous discharge from the vagina, which passed off, and the circumstance might have been forgotton but for the marked child. A blow, the funis, and the violent and sudden contraction of the uterus, are briefly discussed and dismissed as causes of this remarkable phenomena; and it is referred to the fall of the mother six weeks before, as its most probable source. The case is believed to be unique; and it is pointed out as a warning against a too hasty conclusion of guilt in the mother, should such a wound be found in a recent state on the body of the offspring of an unmarried female, in whom a similar accident might possibly produce, together with the wound, premature labour and the death of the child.

The paper is accompanied by a plate, which gives a far better conception of the size and aspect of the wound than words alone can convey; and Mr. Jones deserves our best thanks for the simplicity and clearness with which he has recorded this interesting case.

VI. *A brief appendix to a Case of successful removal of an Ovarian tumour;* by Mr. H. E. Burd, Surgeon to the Salop Infirmary,—mentions that the patient had subsequently become pregnant, been safely deliverered, and was in the enjoyment of unimpaired health.

VII. *Case of Exfoliation of the anterior arch of the Atlas;* by R. Walde, Esq.

A large sore on the prepuce had, in this case, healed twelve years before, under the use of the mercury; and the patient having caught cold, with his mouth very sore, returned to the hospital after a fortnight's absence, with an ulcerated throat, which became much worse under treatment by mercurial fumigation, accompanied by profuse salivation during the greater part of six weeks. Under the use of sarsaparilla and iodide of potassium for three or four months, he appeared to be quite cured; and two years later, when his throat again became sore, he resumed these medicines with the same apparent success as before. In a short time, however, the sore-throat returned, and had continued more or less, up to the date of the paper, in defiance of the means which had previously seemed successful. A considerable portion of the alveolar and palatine processes of the superior maxillary bone, and one of the spongy bones, had exfoliated between the third and fourth year from the commencement of his disease. When he came under Mr. Wade's care, he had a sloughy ulcer occupying almost the whole of the pharynx, with constant pain in the back part of his head, and intolerance of pressure over the upper cervical vertebræ. Two months later, he felt something give way in the back of his neck, with a loud crack like the report of a pistol, heard also by his wife; became faint, and thought himself dying; and Mr. Wade, on subsequently examining the pharynx, observed a small portion of projecting bone, and with very little difficulty removed the greater part of the anterior arch of the atlas, with the entire articulating surface, from the odontoid process of the axis. In the course of three months the man was able to resume his usual occupation, with the power of turning his head nearly perfect, but unable to bend it forwards except to a very small extent. There was considerable depression in the site of the lost bone, and Mr. Wade constantly found a strumous-looking ulceration in the throat, although the man stated that it occasionally healed, and became sore again when he caught cold. The concise but detailed sketch we have here given evinces the interest which we feel in this extraordinary case, and we trust that its author will hereafter furnish us with an account of its further progress.

VIII. *Pathological researches into the Diseases of the Ear;* by J. Toynbee, F. R. S., &c.

The greater number of mankind are manifestly deaf, since out of 915 ears dissected, Mr. Toynbee predicates deafness in 184, as ascertained from their history; he infers the existence of deafness in other 70 from their condition; he finds incipient deafness in 358; and an absence of deafness only in 303. Two thirds, therefore, of the ears in common use are more or less deficient in the power of hearing, and it must depend of course upon the way in which these faulty organs are distributed, whether our conclusion be correct; but it seems a natural inference from the above data that every individual member of society has the means of turning a deaf ear to a vast deal of what is spoken around him, a gift, which in this age of oratory, we look upon as a most merciful dispensation of Providence. No oculist has cast such sweeping imputation upon the working condition of the eyes, so that we have in the present paper at once a verification and explanation of the Horatian remark—

> "Segnius irritant animos admissa per aures
> Quam quæ sunt oculis submissa fidelibus."

Conditions of the membrana tympani ministering to a deafness are a thickening of its substance, depending generally on thickening of the mucous membrane lining its inner surface, and indicated by a smooth and shiny appearance externally. Adhesion of the membrane to the promontory and ossicula, or through the medium of false membranes, is another frequent morbid condition. Concavity of the external surface of the membrane is the ordinary index of these states. Partial or complete destruction of the membrana tympani causes impaired hearing; but provided no other disease of the organ coexists, is frequently but a trifling impediment to the perception of sounds.

The most common mischief within the cavity of the tympanum, is the thickening of the mucous membrane lining it; and this thickening exists in some instances to such an extent as almost to fill it up, and to bury the ossicula completely. The most common contents of the tympanic cavity are mucus, purulent discharges, and scrofulous matter; which correspond with the three diseases, colds, scarlet fever, and scrofula, from which deafness so frequently results. Bands of adhesion, connecting the ossicula with each other, and with the walls of the tympanum, are also of frequent occurrence. Another source of deafness exists in the anchylosis of the base of the stapes to the margin of the fenestra ovalis. In 612 dissections of faulty ears, there were traces of disease of the Eustachian tube in 21 only, whence it results that deafness seldom depends on obstruction of that canal. Disease originating in the cavities which contain the expansion of the auditory nerve, or in their contents, is a phenomenon of very rare occurrence.

No detail is here given of the curative measures, which the various affections, resulting in deafness, may seem to indicate; nevertheless it is urged upon the attention of the profession that early judicious treatment, pursued with careful perseverance, is likely to be crowned with success. It is not stated that the curative means are self-evident from the pathological conditions; and we well know how completely the structural changes impressed by disease may be understood, and yet the appropriate treatment be matter of difficulty and doubt; but here we have a keeping back of every hint as to the treatment, the early and persevering use of which has been found so beneficial that we are urged to resort to it. We ask whether the announcement of a knowledge of so efficient means of cure, and the admonition to resort to them, unaccompanied by an explanation of their nature and the mode of employing them, do not constitute a deviation from the course prescribed to its members by general consent of the whole body of our profession?

Do the terms "rational mode of treatment" indicate whether local depletion, counter-irritation, mercurials, iodine, or what other external or internal measures, are entitled to confidence? It is true that in ophthalmia a knowledge of its pathology, and the fact of the successive changes in its progress being distinctly visible, leave no room for uncertainty as to the applications to be resorted to, and the general treatment to be followed? If so, we retract the imputation we have conveyed; if not, we hold the Council of the Society and Editor of the Transactions, in some degree responsible for the appearance of the paragraph which we have just been reflecting on.

The passage following that just noticed (at page 76) is well calculated to give effect to the general bearing of the latter; for here we are told that in a very large proportion of the very numerous examples of deafness examined, such attenuation of the bony parietes of the ear in one direction or another has been observed, as every tyro knows to be eminently perilous to life. Thus in 54 dissections, the upper wall of the tympanum was imperfect, and its mucous membrane actually in contact with the dura mater; in 22 dissections, the lower wall of the tympanum was defective, and the mucous membrane was infringing on the internal jugular vein. And shortly afterwards we are informed that numerous cases of disease, propagated from the ear to the brain, and the other important organs alluded to, have fallen under the notice of the author, who trusts that no very long time will elapse before they are prepared, with the dissections, for submission to the profession. But still, be it remarked, there is not even a promise of divulging that treatment, whether preventive or remedial, which he has found of so great avail. With this winding up, and a tender of thanks to a number of gentlemen, whose names Mr. Toynbee is no doubt proud of associating with his own, the text of the paper concludes. Then follow tables recording, in customary columnar order, the minute alterations in the right and in the left, out of 184 ears known to be deaf, and out of 70 presumed to be so. Also a table showing the exact number of times that each one particular morbid lesion out of forty-eight varieties of morbid lesion noted, was observed in 358 cases of incipient deafness. Table IV forms the climax and conclusion of the whole. The results of the 612 cases already viewed in the three preceding tables under different aspects, are here set down afresh in the perfection of a summary, which only differs from Table III in the greater number of cases embraced, and in the greater number of particulars recorded.

Will any one say, that to record separately how often the membrana tympani is white and thicker than natural, how often it is very concave externally, how often flat, how often vascular, how often thick and vascular, how often very concave and adherent to the promontory, and how often connected to the promontory by bands, is to enter into unprofitable or into unnecessary particulars? Will any one contend that one hundred and ten distinct heads are too numerous for the setting forth such interesting details? We shall not condescend to notice these cavillers, if any such there be, since we hold that every well-observed fact in pathology has its value; but we had much rather have seen some of the space thus occupied, devoted to an account of the treatment on which Mr. Toynbee relies for the prevention or cure of these lesions. In our remarks on this point, we would not be understood as imputing to Mr. Toynbee any improper motive, as we are sure that of such he is absolutely incapable.

IX. *Case of Apoplexy of the Cerebellum;* by Robert Dunn, M.R.C.S.

Mr. Dunn commences his paper by the very appropriate remark, that, although apoplexy is a disease of such frequent occurrence, still individual cases become invested with a special interest, where the opportunity has been afforded of watching the patients during life, and of investigating the pathological changes which present themselves after death. The peculiar succession of the symptoms, taken in connexion with the post-mortem appearances, observed in this instance by Mr. Dunn—a most intelligent and able practitioner,—fully justified him in bringing it prominently before the notice of the profession; and we are very glad to find that the officials of the society have not shown that inability to recognise the merits of this communication, which they displayed towards a former paper by the same author, containing an account of one of the most interesting and instructive, as well as one of the rarest forms of nervous disorder, which ever fell under our notice.*

The subject of the apoplectic attack was a man 52 years of age, of a spare habit and nervous temperament, and of considerable mental energy and activity. He had suffered for some years from an amaurotic affection, which had considerably impaired his sight; but no other serious disorder manifested itself until June, 1843, when Mr. Dunn was called to attend him in an attack of cephalæa, with considerable febrile disturbance. This subsided under the influence of topical bloodletting, and strict antiphlogistic treatment; but the sight remained more seriously impaired, and the patient was long in regaining his wonted energy and vigour. About the beginning of 1847, he became embarrassed in his pecuniary affairs, and the anxiety and harassment which he underwent appeared to shake his whole nervous system. He was peculiarly prone to emotional excitement, and became forgetful and lethargic, so as to be unfit for business, Such had been the state of his health for many months, when Mr. Dunn was hastily called to attend him on the 30th of April, 1848, in consequence of his having been seized during the night with sickness and faintness, and having fallen down in what was supposed to be a fainting fit. He was found by Mr. Dunn in a low exhausted state, with a feeble pulse, and cold clammy perspiration; but with heat, pain, and uneasiness in the back part of the head. There was no paralysis, but a hurriedness of manner, with great restlessness and irritability of temper; and this emotional excitability continued to manifest itself most distressingly, whilst his intellectual faculties became gradually weaker. Early in May, his wife mentioned that he had become the subject of a constant desire for sexual intercourse; his conduct in this respect being very different to what it had been before the attack. By Mr. Dunn's advice, the patient left home for about three weeks, without his wife; and on his return, he manifested some degree of improvement in his general health, with an abatement in the desire for sexual intercourse, which further seemed gradually to diminish until his death. There was now observed, however, an unsteadiness in his gait, which was much increased under the influence of emotional excitement; and for some time before he died, he had a settled weakness and stiffness in the left leg and foot. He was apathetic and lethargic, sleeping half his time away. On the 6th of September, 1848, after having eaten a hearty dinner, he was seized with severe pain in the back part of the head, which was immediately followed by faintness, sickness, and vomiting; coma succeeded, with stertorous breathing, and a feeble, fluttering pulse; and he died within four hours from the commencement of the attack. We give Mr. Dunn's account of the *post-mortem* appearances without abridgement:

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* See Mr. Dunn's case of "Suspension of the Mental Faculties, of the Power of Speech, and Special Senses, with the exception of Sight and Touch," published in the Lancet for 1845 (vol. ii, pp. 536 and 588), and fully noticed also in the Brit. and For. Med. Review, Vol. XXIII, pp. 229-34.

> "The vessels on the surface of the brain were found distended with dark black blood. The brain itself presented an unhealthy aspect. The convolutions shrunken in size, and wanting firmness of texture, were of a dingy yellow hue, approaching the colour of whity-brown paper. The optic nerves had the same shrunken character and dingy hue; and on tracing them from the chiasma through the optic tracts into their cerebral connexions, they and the surrounding substance were found to be in a state of whitish-gray softening; the whole region of the mesocephale had an unhealthy aspect, and on its outer surface were seen patches of the same whitish-gray degeneration. The anterior of the right hemisphere of the cerebellum had become a softened pulpy mass, in the midst of which was found an apoplectic clot of the size of a pullet's egg, from the rupture of one of the branches of the vertebral artery. The softening had extended inwardly beyond the centre of the median lobe, implicating the fibrous strands of the middle and inferior planes in the destructive process, and outwardly so near to the surface of the hemisphere, that a portion of the apoplectic clot was projecting through it. Some extravasated blood was found in the lateral ventricle, especially on the right side. The whole arterial system of the brain was more or less in an unhealthy state; presenting that diseased condition of the vessels, which results from cartilaginous and ossific deposition between their coats. In the vertebral arteries, this was remarkably apparent; there was seen a succession of osseous rings, at short distances from each other; while on the right side, the vessel was enlarged, and upon its cerebellar branch, in which the rupture appeared to have taken place, there were whitish raised patches of cartilaginous deposit." (p. 111.)

There can be little doubt that the condition of the walls of the blood-vessels was the primary source of the other morbid phenomena; and it would seem probable, from the similarity of the symptoms of the first attack, to those of the attack which terminated the patient's life, that it was of an apoplectic nature, and that it had some relation (either as cause or consequence), with the localization of the inflammatory affection, which thenceforth manifested itself by the pain, heat, and uneasiness in the back part of the head. The general condition of the brain affords a sufficient explanation of the loss of intellectual power, and of the emotional excitability which so frequently accompanies this; but the inquiry of special interest, suggested by this case, is the connexion of the peculiar affection of the sexual propensity, and of the disorder of the motor function, with the morbid changes taking place in the cerebellum. Mr. Dunn is inclined to attribute *both* of these classes of phenomena to the cerebellic degeneration. In regard to the extraordinary excitement of the sexual propensity, he remarks, that it was a sudden invasion; and that, "manifesting itself, as it did, so soon after his seizure in April, the inference appears to be indisputable, that it was a consequence of that attack, and dependent upon the *irritative stage* of that destructive disturbance of the cerebellum, which afterwards led to such extensive degeneration of its structure." On the other hand, the deep seated disorganization of the fibrous structure of the cerebellum fully accounts for the manifestation of defective co-ordinating power in the maintenance of the position of the body, if the view of the function of the hemispheres of the cerebellum, now generally adopted by physiologists, be admitted (as it is most fully by Mr. Dunn) on the evidence supplied by comparative anatomy, experiment, and pathological observation.—This is not the only instance in which Mr. Dunn has witnessed a similar combination and sequence of phenomena and has been able to connect it with a lesion of the same description; for he cites the case of a man formerly under his care, whose erotic propensities were continually overmastering his virtuous inclinations, but who entirely lost the former in the latter part of his life; and then walked with such a tottering, uncertain gait, as to require the assistance of a stick; and in this instance, also, there was found an extensive softening in the middle and one of the lateral lobes of the cerebellum, with atrophy of the genital organs.

From these and other considerations, Mr. Dunn is led to the conclusion, that the *central* lobe of the cerebellum is the seat of sexual instinct, or, rather is the ganglionic centre of sexual sensations; whilst the hemispheres of the cerebellum are the instruments of the co-ordinating power. He thinks with Dr. Carpenter, that—

> "The sensory ganglia are evidently the instruments by which instinctive and consensual actions are performed, and that they are also the seat of the simple or elementary feelings of pleasure and pain, connected with their respective functional endowments. And thus, in the lower tribes of animals, whose instincts are not restrained and directed by intelligence, the sexual instinct is exalted into action by the direct operation of internal sensations, and all the respondent movements are consensual. *Where there is no cerebrum, there is no cerebellum.* But where the desire for the gratification of the sexual propensity involves both sensual pleasure and an idea of the object, we there find both *cerebrum* and *cerebellum;* and in the latter a sensory ganglion, in the most intimate connexion with the great centres of sensation and emotional feeling, and through them, with those of intellectual action; thus affording, from its anatomical and physiological relations, a ready and satisfactory explanation of the complex character of the amative propensity in man." (p. 114.)

This we hold to be the most probable account yet given of the relation of the cerebellum to the sexual passion. That the strength of this passion bears no proportion whatever to the size of the organ taken as a whole, we think that comparative anatomy most unmistakeably teaches. But, on the other hand, the facts of comparative anatomy, when carefully examined, lead us to the conclusion that the central and lateral lobes of the cerebellum are really two distinct organs; and that their connexions and relative development being altogether different, their functions are probably different also. Now there is, we believe, no instance in which a lesion confined to the lateral lobes has been followed by any peculiar sexual manifestation; whilst on the other hand, there are abundant examples in which lesions of the central lobe, or of the neighbouring part of the medulla oblongata, have been followed by changes indicating either excitement or depression of the sexual sense, the former being frequently attributable to an irritative state of the organ, and the latter to destructive changes taking place in it. The question of the connexion of the cerebellum, or any portion of it, with the sexual instinct, cannot be settled by a reference to those lower tribes of animals in which the genital organs are enormously developed, and which yet have not the merest rudiment of a cerebellum; for in such cases, there is no evidence that the process of reproduction involves sensation at all, its whole series of phenomena being as completely a part of the organic life of these beings,as they are in (and, by reference, in the higher animals) there are sexual sensations, which stimulate to the performance of the reproductive movements,—either *automatically*, in which case the respondent movements are of the instinctive kind,—or *voluntarily*, by giving rise to ideas and desires, which constitute a propensity that acts through the intellect. Now every sensation must have an encephalic centre; and although many physiologists are of opinion that the sexual sensations are but a modification of the ordinary sense of touch, we think that their nature affords strong evidence to the contrary, and that they are likely to have a special centre of their own, placed in the line of the other sensory ganglia, and in close connexion with them. Mr. Dunn's cases go to confirm this view; and we trust that, under the guidance of his suggestions, other evidence may be collected, which will bring it to the test of extended observation.

X. *Remarks on the Causes and Morbid Anatomy of Mental Diseases;*

by J. Webster, M.D., F.R.S.

The present is the third paper on this subject for which we are indebted to this author; and embraces sixty-seven dissections in addition to the 108 autopsies of insane patients already reported.

It appears that of 1798 curable lunatics admitted into Bethlem Hospital, during the six years ending on the 31st of December 1847, 1094 were female, and only 704 male patients. In 489 of the former, and in 346 of the latter class, the mental disease was induced by moral causes; while in 228 of the females, and in 156 males, it originated in such as are considered physical. Of the physical causes which had thus operated on females, puerperal disease was the most frequent, affording 117 examples; while in men, intemperance takes the first place, and furnishes 80. The proportion of the insane, from the immoderate use of intoxicating liquors, is for women 12·40 per cent., for men 51·28 per cent., of those whose derangement is due to physical causes. Of the the 1094 females, 390, and of the 704 males, 219 were hereditarily predisposed. On this part of the subject it is remarked, that insanity is more frequently transmitted to the offspring by the mother than by the father; and by the mother oftener to female than to male children.

Of cases of insanity arising from moral causes, in women those due to love are the most curable, and next, those referred to religion; in men, those arising from pecuniary embarrassments have the first, those from religion the second place, in order of curability. The most favorable prognosis exists in puerperal insanity; and among men affected by physical causes, in those who suffer in consequence of intemperance. Of the 1094 women, the greatest number, 309, became insane between the ages of 20 and 30; of the 704 male, the highest number, 218, between 30 and 40.

Before proceeding to the synopsis of dissections, embracing the sixty-seven recently observed cases, Dr Webster expresses his confirmed conviction of the truth of the opinions of the anatomists, who consider the diseased alterations of structure observed in the brain to produce the attack of insanity, to the exclusion of the views of the vitalists, who believe them to be only consequences. The synopsis is of course unsuited for analysis in these pages, and we pass on at once to give the author's epitome of the principal diseased alterations of structure met with in the 175 autopsies recorded in his two former and present papers :

> "In 145 cases, the pia mater was infiltrated ; in 127, there was turgidity of the blood-vessels ; in 120, fluid was effused in the ventricles ; in 62, the arachnoid coat was thickened and opaque ; in 45, the colour of the brain was altered from its natural tint ; in 32, bloody points were noticed on the cut surfaces of the medullary substance ; and in 32 cases, blood was found effused within the cranium." (p. 155.)

The diseased changes, therefore, which pathologists may generally expect to find on examining the heads of lunatics, in a great number of dissections, will be : 1st, infiltration of the pia mater ; 2d, turgidity of the blood-vessels of the brain and membranes ; and, 3d, effusion of fluid in the ventricles.

Dr. Webster deserves much credit for the industry with which he has collected, and the skill with which he has arranged, the numerous facts brought together in the present paper. We thank him, at all events, for adding largely to the store of precise observations, from which we have to learn how much, or how little, morbid anatomy is capable of teaching us with regard to the intimate nature and appropriate treatment of mental diseases.

XI. *A Case of Hemiplegia associated with great Hypertrophy of the Heart ;* by J. Risdon Bennett, M.D., &c.

John Spinks, a shoemaker, aged 52, was admitted under Dr. Bennett's care, on the 27th of February, 1849. For six months previously he had experienced more or less palpitation of the heart, and for three months past more or less of headache, dimness of vision, and vertigo. Fourteen days ago he awoke in the night with loss of speech, and of power of voluntary motion of the right side. His intelligence was not affected, and the sensation but slightly impaired. On the 28th of February his articulation was very indistinct, he could walk without much dragging of the right leg, and complained only of some numbness in the fingers. He had giddiness and uncomfortable feeling in the head, and a certain amount of dyspnœa on exertion. It is remarked, that there was greatly increased impulse of the heart, with extended dullness on percussion over the cardiac region. There was no œdema of the extremities, nor did the countenance indicate any obstruction to the pulmonary circulation. His symptoms somewhat improved under slight salivation and other treatment, up to April the 8th, when he was seized with a paroxysm of palpitation and dyspnœa ; his speech became much more inarticulate, and the paralysis both of sensation and motion of the right side was increased. Again some slight amendment took place, yet his speech was quite inarticulate, his breathing quick and hurried, and he was exceedingly feeble. Three days later, on the 24th of April, while he was in much the same state, he suddenly uttered a cry for assistance, and expired within three or four minutes.

A large apoplectic clot, of an uniform dark, black colour, and apparently of very recent formation, was found in the left corpus striatum, and another of the size of a horse-bean, but in other respects similar, in the centre of the left half of the pons varolii. Softening of the brain existed around both. In the centre of the right half of the pons, the cerebral substance was also in a state of white softening; while all the arteries at the base of the brain, and the smaller branches given off from them, were loaded with atheromatous deposits.

Three or four pints of recently-extravasated blood filled the left pleura. The hemorrhage was traced to a laceration in the costal pleura, near the head of the ninth rib; the cellular tissue, in the posterior mediastinum, was throughout infiltrated with recently coagulated blood, by which the pleura on each side was raised. On laying open the aorta, *in situ*, there was discovered a nearly transverse rupture, three quarters of an inch in length, situated immediately beneath the origin of the subclavian artery. This rupture was directly through all the coats of the artery, and traversed a patch of atheroma. Above the point of rupture, there was no separation of the coats of the artery; but from this point downwards, blood was effused between the coats of the vessel, splitting it up as far as the iliacs. Throughout its whole course, the aorta was thickly studded with atheromatous deposit. The heart was enormously enlarged, and the left ventricle was also hypertrophied. The kidneys were considerably diseased.

All the immediate sources of disturbed health may, in this case, be recognised as consequences of the general atheromatous condition of the blood-vessels, in which originated both the cerebral and cardiac symptoms, and certainly the fatal issue. We have given sufficient particulars to show that the case is very interesting, as illustrating most important particulars in the history of atheroma, and well deserving a public record.

XII. *Case of Popliteal Aneurism, in which the Femoral Artery was tied after the Sac had burst;* by J. D. Wright, Surgeon-Major, Grenadier Guards.

Private John Maiden, aged 37, by trade a shoemaker, of spare make, but well proportioned, height five feet ten inches, habitually healthy, on the 17th of March, 1848, walked to hospital, reporting he had pain and swelling of the left knee-joint. He had first felt pain, and perceived the popliteal tumour six days before. After bleeding, spare diet, and rest for four days, the pad of an Italian tourniquet was placed over the artery, a little above where it enters the tendinous canal. On the eighth day of the application of a moderated pressure, which alone could be borne, an additional tumour was felt on the inner side of the joint, and it was evident that the coats of the aneurism had given way, and allowed blood to be effused. The operation of tying the femoral artery was performed by Mr. Hathwaite within three hours, the patient being under the influence of chloroform. The pulsation of the tumour ceased immediately, the limb again became tumid, and the superficial veins more turgid; but these effects speedily subsided, the effused blood was gradually absorbed, and the aneurismal tumour by degrees diminished. The wound healed partly by adhesion, and partly by granulation; and the ligature separated on the twenty-sixth day. On April 9th, the tumour was reduced two thirds; the man had recovered the use of the limb, and was doing all his duties as a soldier. On the 8th of August he still walked a little lame, and suffered cramp in the calf and swelling of the ankle after much exercise. The tumour, originally as big as an orange, was now of the size of half a walnut, and the circulation in the leg appeared good. The case seems very important on account of its bearing upon practice.

XIII. *Case of Chronic Hiccup and Vomiting; discovery of Oxalic Acid in the Blood;* by A. B. Garrod, M. D.

J. Johnson, aged 65, subject to vicissitudes of the weather, and a spirit-drinker, became a patient in February 1849, with cough and œdema of the face and extremities, and urine highly charged with albumen. A fortnight later, his condition was in all respects worse; there was ascites, in addition to considerable œdema of the face and extremities; and constant hiccup, attended with eructations either of food or a clear watery fluid; there was no pain, but a drowsy and confused sensation; the urine was strongly albuminous and cherry-red. The man lingered till the 7th of May, when he died, after having been insensible during eight hours.

On examination, the kidneys had a few cysts on their surface, were coarse in texture, and, when minutely examined, their surfaces were found studded with innumerable white points, arising from the tubes in the cortical portion being filled with a white plaster-like matter (urate of soda). Nitrate of urea was obtained from blood taken after death from the vessels of the brain; and crystals of oxalate of lime were detected in the same blood, and also in some taken from the loins in the early part of the man's attendance as a patient. We give Dr. Garrod all the credit due to him as the parent of this new offspring of chemical research. Time, however, can alone make apparent, whether it is hereafter to assume the importance of a giant, or the insignificance of a pigmy, or, indeed, whether it shall cease to be, ere as yet it has strengthened the cause either of error or of truth.

Note on Mr. Paget's Account of a Dislocation in consequence of Disease of the First and Second Cervical Vertebræ, in the last volume of the 'Transactions.'

The description there given is that of bones united together, so as greatly to narrow the canal for the spinal cord; but as the bones were found in a churchyard at Aberdeen, no history of the symptoms, &c., preceding death could be obtained. Dr. Williamson, of Aberdeen, having recognised the preparation, now sends a history of the case: that of a boy, 15 years old, who laboured during eighteen months under symptoms of spinal disease, and died of general paralysis; the power of articulation having been lost for fourteen, and that of deglutition, in a great measure, for ten days prior to death, while sight, and hearing, and the mental faculties were unimpaired almost to the last.

Art. XIII.

On the Operation for Strangulated Hernia. By Henry Hancock, F.R.C.S.E., President of the Medical Society of London, Surgeon and Lecturer on Surgery, Charing Cross Hospital, &c.—*London*, 1850. 8vo, pp. 94.

Between extremes, we generally meet with the truth, and it is by the antagonism of such extremes that the truth is elicited;—an observation which has been repeatedly verified in our own profession, and of which the subject we now propose to consider offers, to our mind, a striking example. Trusting to the antagonist of which we have spoken, we are never disposed to quarrel with any man for taking up the subject he advocates with warmth and earnestness,—provided always he do it conscientiously,—because we are confident that the rejoinder will come sooner or later, in which assertions will be questioned, statistics sifted, fallacious reasoning exposed, and the mists of partiality dispelled; though it may be to substitute other imperfect statistics, supported by fresh sophistry, and still clouded by prejudice. Yet much is thus effected; for the *facts* are placed in different lights before the public, which is able to pass a dispassionate verdict on the validity of the information adduced, and the merits of the reasoning founded thereon.

Mr. Hancock is at issue with many of his predecessors and contemporaries on two important points in the treatment of strangulated hernia; viz. the administration of purgative medicines, and the mode of conducting the operation for the relief of the strictured intestine. We think he has much reason on his side; and our own practice has been very much influenced in the same direction, and on the same grounds, for some time past. We do not, however, go the full length with him, in entirely denouncing one mode of practice, and as exclusively adopting the other. This we consider a mischievous extreme, and scarcely warranted as a practical conclusion from his own statistics and experience.

Before entering upon such brief review as our space will afford, of the subjects under consideration, it may be as well to state each position separately; and then proceed to the discussion of the opinions maintained by the supporters of the several views, and the grounds on which they base their inferences. First, of the operation for the relief of strangulated hernia.

The most usual mode of performing this operation is, by laying open the peritoneum which forms the sac, and then dividing the stricture. For reasons to be presently stated, some surgeons have thought right to deviate from this practice, and to adopt, as a general rule, the division of the stricture external to the sac of investing peritoneum, which surrounds the strangulated gut or omentum. This plan has received the distinguishing appellation of Petit's operation; though it dates its origin to a time prior to its advocacy by that surgeon.—The question is, which of these two modes of practice is to be adopted as the *general rule:* and it is right that we should here at once add, that the supporters of the 'new style' are not *exclusives;* though many who give a preference to the old plan, do so to the entire exclusion of the new. Our author belongs to the latter class. The question is, doubtless, one of grave importance; and the innovation (if we may so term it) has been countenanced by many good surgeons, who have had large personal opportunities of testing its value. It is not, however, so much of an abstract question, as at first sight, it might appear. The information we require is, which is the safer operation in the hands of the many: and in the multitude are, of course, included those whose personal experience is comparatively limited, and who, therefore, cannot be expected to apply those delicate tests in the diagnosis of individual cases, which such men as Mr. Key and Mr. Luke could do. We believe, in short, that the operation without opening the sac may be regarded as the preferable alternative by surgeons of large experience, who are fully alive to the fact that, in the ordinary routine of practice, the exceptions may embrace a much more numerous class of cases than the rule; but we have as little hesitation in regarding the older plan of opening the sac in all cases, as a more certain and less dangerous course, to be pursued by surgeons, to whose lot it falls only occasionally to perform this serious though simple operation. This view has not been taken by writers on the subject, who have treated it as involving only the abstract question of which is the preferable method as a general rule of practice; and the advocates of each plan have considered that their statistics have borne out their several opinions. A review of these, and of the whole subject, has satisfied us that the consideration we have just pointed out constitutes, in a practical point of view, an important element in discussing the question. With this foregone conclusion, on our own part, we proceed to analyse the contents of Mr. Hancock's volume.

The various objections to the ordinary mode of operating are fully and fairly stated by our author. They are these:—Peritoneal inflammation consequent on exposure and handling of the contents of the sac, and admission of air into the serous cavity; hemorrhage; risk of wounding the intestine, or of rupturing it by drawing it down to examine its condition at the seat of stricture; extreme prostration; danger of disorganization from exposure.—The validity of these objections, as a whole, is first questioned by Mr. Hancock, who regards the exaggeration of the danger attending the usual operation by the advocates of Petit's method, as fraught with mischief; inasmuch as it tends to perpetuate the system of delay which has acted so prejudicially in augmenting the calendar of fatal cases. In this opinion we concur. Simple delay each hour diminishes the chance of the patient's recovery; and when we have superadded to this negative cause, the positive injury done to the intestine by violent and prolonged taxis, with the additional agency of stimulant cathartics upon the mucous and muscular coats of the bowel, we may fairly anticipate that the "last resource" will fail. In this respect, then, we think it is a favorable point in the newer operation, that it induces the surgeon to propose, and the patient to submit, at an earlier period, to operative interference; and if the operator be only prepared by previously acquired tact and knowledge to discriminate whether it is safe to complete the operation without opening the sac, he may safely adopt Petit's method as his general rule; always bearing in mind, as we have already remarked, that the exceptions to such rule are very numerous. Mr. Key attributes the usual fatality of the ordinary operation to exposure of the inflamed or strangulated portion of bowel. Mr. Hancock says, that comparatively few patients die of simple peritonitis after this operation, and supports his opinion by referring to his own experience, with statistics, adduced (for other purposes) by Mr. Gay, and by the fact that the "amount of mortality is not in the same ratio as the extent of intestine exposed." It is quite true, that small herniæ excite, generally, the most urgent symptoms; but this is because they are generally recent, and the ring through which the gut descends is contracted; the stricture, in consequence, is generally tighter in these cases, and the intestine more susceptible on its first protrusion. We do not, therefore, attach much weight to this remark of our author. But it is certainly true, that a large old hernia may be often exposed and roughly handled, without the same risk which attends a similar exposure of one of recent descent; and, for this and other reasons, we are disposed to regard Petit's operation as more applicable in recent than in old ruptures. There is less probability of adhesion on the one part, and less risk from exposure of the contents of the sac on the other.

Again, is the incision of the peritoneum fraught with the risk attributed to it? Our author thinks not, when the serous membrane is already in a diseased condition; and considers that his position is proved by the impunity with which the large abdominal sections for ovariotomy are made. The operation for paracentesis abdominis, and the removal of large portions of omentum, are also regarded as affording confirmatory evidence on the same point. We are not prepared to go the full length with Mr. Hancock in this opinion. If inflammation is less likely to occur in some of the instances he has adduced, it is rather because the system generally is less prone to destructive forms of inflammation when partially prostrated by disease, than where the frame is suddenly subjected to a severe injury, involving an important serous membrane, such as is the peritoneum. But, be this as it may, we have no hesitation in ascribing infinitely more importance to the prolonged pressure by the ring of stricture upon the strangulated intestine, than to the small and clean incision which is required to liberate the gut; and, if there be no unnecessary handling, the general sac of the peritoneum need be very little interfered with.

We shall not now stop to analyse the cases cited to prove that purgatives are a frequent cause of death. This subject is treated of under a separate head, and we prefer keeping the questions distinct.—The sudden prostration which sometimes occurs after operation, has been attributed, and we think unjustly, to exposure of the bowel. Of this objection, Mr. Hancock takes a right view, in regarding it as belonging to that category which has been so ably treated of in Mr. Traver's invaluable work on 'Constitutional Irritation.'—The risk of wounding the intestine may be dismissed as a question of simple dexterity; and, unless the surgeon possess the requisite tact to avoid such a catastrophe, he ought not to handle the knife. It is true that the adjacent surfaces of sac and gut may be adherent; but then the operation of Petit can scarcely be said to be applicable to such cases; at any rate, few of its advocates, we apprehend, would be willing to leave the contents of the sac unreturned, or run the risk of returning the sac with them. Our author objects to opening the sac near its neck, and thinks there is more risk, in so doing, of wounding the intestine. He is probably right; and certainly there is no object in making such a limited incision, if the hernia be small. The healing process involves a certain amount of suppuration of the sac, and it is better there should be a free exit for the discharge. In large hernial protrusions, there can be no question about the advisability of making a limited incision, and that near to the neck of the sac.

An allusion is made by Mr. Hancock to the modification of Petit's operation, recommended by Mr. Gay. He regards it as presenting no superiority over those of Petit and Luke, and thinks it does not carry out the principle contended for by its author, viz. that of not making the incisions deeper, or wounding more structures, than is absolutely necessary. We think, with our author, that it is far better, in such an operation, to see a little more what we are about. In this, as indeed in some instances of Petit's operation, we would suggest the possibility of wounding both sac and intestine. We were very recently withheld from completing an operation for femoral hernia, according to Petit's method, from a dread of this risk; the stricture being very tight, and the contents of the sac pressing the latter abruptly and prominently inwards, below Gimbernat's ligament. Such an obstacle, however, to the completion of Petit's operation is, we admit, of rare existence.

We think the objection, that the gut may be ruptured by drawing it down to examine its condition at the seat of stricture, altogether idle, and inapplicable to the question under discussion. Though a wise precaution, under most circumstances, this does not constitute a necessary part of the operation in which the sac is opened; and we, for our part, should not hesitate in regarding such rotten condition of the bowel (if we were acquainted with it) as a sufficient reason, per se, for completing the operation according to the ordinary method, and not of pushing back, without examination, a portion of intestine which would be very likely to give way spontaneously when returned. With respect to the risk of disorganization from exposure, we believe, with Mr. Hancock, that this is rather due to violent manipulation in the prior employment of the taxis, which is a far more rife cause of fatal peritonitis than exposure of a limited portion of the peritoneal surface. We pass by the fanciful objections urged by Mr. Gay against the ordinary operation, as one which "may prove fatal, by inducing unhealthy processes in the external wound," and proceed to grapple with something more real. This we find in the risk of hemorrhage into the abdominal cavity from a wounded artery. Fortunately this is rare; it can scarcely occur under ordinary circumstances, and if ordinary precaution be exercised. Where there is a deviation in the usual course of blood-vessels, no doubt the utmost dexterity cannot always avert the mischief. Moreover, such abnormal arrangement is certainly not frequent in connexion with either the femoral or the inguinal rings; the epigastric is the bugbear in one case, and the obturator in the other. The latter vessel *very frequently* arises from the former, but *very rarely* passes in such a position as to encircle the neck of a protruding femoral rupture, and thus become obnoxious to injury from the knife of the operator. Further, an artery taking such an irregular course would be as liable to injury in one as in the other form of operation; and, in either case, such wound would not necessarily, or even generally, prove fatal. Whilst alluding to this subject, we may as well remark, that it is desirable, in all cases, carefully to examine the circumference of the neck of the sac, especially in crural hernia, to ascertain whether there exist any unusual arrangement of the arteries in its neighbourhood.

We now come to Mr. Hancock's objections to the newer method of operating (Petit's); and, as he has fairly disposed of the objections on the other side, we will give him an open field and fair play, by allowing him to plead for himself.

> "My objection to Petit's operation are, that it is not applicable to all cases, and that, consequently, the patient is exposed to the danger attending error of selection. In performing operations, it is our duty to select that method which is capable of embracing, as far as may be, all difficulties and modifications which may be met with during such operation, and which it is impossible to ascertain before the operation has commenced; and, moreover, we ought to employ that mode which holds out the greatest certainty of effecting that for which it was undertaken, and of which, in strangulated hernia, we can never be certain, unless the sac be opened. It is of great importance that we should be able to judge of the condition of the contents of the hernial sac; whether the intestine be healthy, ulcerated, or gangrenous,—whether adhesions confine it to any part of the sac; the condition and disposition of the omentum, the number of protrusions, the condition and arrangement of the sac, whether double, single, or otherwise, and the seat of the stricture, are all matters influencing the success of the operation." (p. 25.)

There is much that is just and true in the above quotation; and the illustrative examples, subsequently cited by our author, unquestionably support his views, yet they are scarcely sufficient to justify his conclusion, that the operation of Petit should be discarded altogether. But we will examine the validity of the objections a little more in detail. The "difficulties and modifications" alluded to are, the engagement of the testicle in the ring, conjointly with the hernia; omentum surrounding the intestine, or adhering to the interior of the sac, or strangulating the intestine by crossing and binding it down; a multiplicity of sacs; the coexistence of two forms of hernia, the one masking the other; great density of the sac; its rupture, and the escape of the intestine through the rent; complication of hernia with hydrocele, and strangulation by rupture of the sac; plurality of necks to the sac, &c. Now, many of these—indeed, most of them—are complications of rare occurrence. Further, the history of some, and the condition of others, would declare the real condition of parts. And it is to be borne in mind, that, in commencing an operation with the intention of completing it without opening the sac, the surgeon always has the option of exposing its contents, if any suspicious circumstance excite his attention; and then, as we have said before, there should be no hesitation on the subject. We have ourselves, in one instance, operated where the testicle was engaged in the ring with a congenital hernia; but the history of the case and the absence of the testicle were sufficient to indicate the actual state of parts.

There are, however, some other conditions, to which the objections of our author apply with more force; and one, in particular, is the strangulation of the gut by an adventitious band, at, or within, the internal ring,—a circumstance which nothing can reveal, short of actual examination, by the introduction of the finger, after the sac has been opened and its neck incised. We, therefore, quite agree with Mr. Hancock, that the practice of gently passing up the finger within the ring, whether inguinal or femoral, is desirable, and can excite no mischief if it be done with great caution and gentleness.

The parallel between the taxis and operating without opening the sac is scarcely admissible; and our author justly asserts the distinction, by pointing out the reducibility of the hernia as constituting an all important contrast between the two. We would even venture to go further, by remarking, that the reduction by taxis had better not be effected at all, than by great violence; for rupture of the gut under such coarse manipulation is not the only serious consequence to be anticipated. The bowel may be fatally and irrecoverably bruised, or the mucous membrane may have sustained lesion, leading to hemorrhage. These are not fanciful, but real risks, which we have actually witnessed.

We must pass by some illustrative cases which follow, and pause for a few moments, to examine our author's analysis of the statistics adduced by Mr. Gay, in favour of Petit's operation. The cases subjected to this ordeal are those of Howship, Poland, Luke, and Hewett. Howship's and Poland's cases are first disposed of, and certainly they are not particularly favorable to the adoption of the newer operation, though there appear to have been very sufficient reasons why the patients should not have recovered in those cases which proved fatal. And we may here remark, that statistics, derived exclusively from the professional experience of a surgeon whose practice it is to operate, *as a rule*, without opening the sac, are not available for comparison, or for testing the relative merits of the two modes of operating; inasmuch as we may fairly conclude, that the least promising cases were those which had been subjected to the exceptional treatment, by opening the sac. Further, the character of the operator for dexterity and discrimination constitutes another and not unimportant element in the consideration; but respecting this, we, of course, can have little means of judging, and we must say nothing; although results of operations are very much dependent on this, and on the judicious and watchful application of such medical treatment as the peculiarity of each case may require.

It cannot be denied, that Mr. Luke's cases appear greatly to favour the operation to which he gives the preference; and there is such internal evidence of impartiality and candour in his statements, that they deserve the greater attention and confidence. The gross results of Petit's operation by him, in fifty-nine cases, between 1831 and 1841, yields a mortality of only seven,—an unprecedented success, it must be allowed. But then Mr. Luke candidly admits, that, of these cases, many were selected, and ought not, therefore, to be admitted as fair subjects for comparison. In short out of a total of 84 cases, in 25 of which the sac was opened, he considers it right to exclude 30, partly for the above reason; and, on the other hand, because some, in which the operation was performed, were hopeless.* Thus, of 54 cases which remain, Petit's operation was completed in 33, and of these only 2 died; whilst, of 21, in which the sac was opened, 3 died. We repeat, that this is unusual success, especially as the bulk of the cases occurred, we presume, in Mr. Luke's hospital practice; and, whether we regard with preference one or another mode of operating, we cannot fail to draw an inference very favorable to the dexterity of the operator. We do not, however, regard these statistics as so conclusive as Mr. Luke himself does, and for the reason already stated, viz. that the class of cases excluded from the Petit catagory, and doomed, so to speak, to an alternative which the operator would willingly avoid if he could, is not likely, for this very reason, to yield such favorable results.

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* We should remark, that whilst we write, we have Mr. Luke's own statement, in his paper in the 31st vol. of the Med.-Chir. Trans., before us.

It is but just to add that Mr. Luke informs us in his excellent paper on the subject, that where the sac was opened, the aperture was made as limited as possible, so that the intestine was but little exposed.

Mr. Hewett's cases certainly prove but little in favour of either plan of treatment; for in the majority of the nine fatal cases in which the sac was opened, out of thirty-four, there were sufficient reasons for the death of the patients, apart from the mode of operating.

Our author concludes this part of his subject, by a comparison between cases subjected to the two forms of operation. The total number of cases is considerable; but we apprehend that the supporters of Petit's method would object to the exclusion of the *large* number of the unsuccessful cases in which the sac was opened, and the omission of the *small* number of similar cases in which it was not opened. We are tempted, however, to give this analysis at length, as the facts are valuable and interesting; and our readers are at liberty to draw their own deductions from them.

> "Through the kindness of Mr. Hamilton and Mr. Puleston, I have been enabled to obtain the particulars of 548 cases of strangulated hernia, collected from various sources. Of these, the sac was opened in 474, the operation proving successful in 307, unsuccessful in 167. In 3, the gut was injured in dividing adhesions; 61 proved fatal, without any complications; and of the remaining 103, in 33 the gut was gangrenous; in 13, it was gangrenous and had burst; in 13, the gut was perforated by ulceration; in 1, the patient had burst the intestine in his endeavours to return it before the operation; in 6, the intestine was adherent to the internal ring; in 7, adherent to the sac; in 8, gangrenous omentum; in 7, adventitious bands and adhesions together; in 2, double sacs; in 2, sacs contained pus; in 1, colon was twisted, and could not be returned; in 1, Petit's operation was first tried and failed; in 1, patient delirious, in *articulo mortis;* in 1, sloughing placenta found in the uterus after death; in 1, disease of the brain; in 1, ossification of the aorta; in 1, encysted hernia of tunica vaginalis, unrelieved; in 1, pneumonia, after twenty-three days; in 1, constricted intestine at point of stricture, the rectum severely ulcerated from very hot enemata; in 1, the patient had been operated upon three times; and in another, the patient had taken several doses of croton oil, turpentine, &c., before the operation; immediately the gut was liberated, the bowels began to act, and continued to do so, almost without intermission, until she died, twelve hours after.
>
> "It should be stated, that the condition of parts here given was in almost every instance found at the time of operation, and not merely observed after death; it must therefore be admitted that the above 103 cases would have terminated fatally had Petit's operation been performed; consequently the number should be calculated at 307 successful, 64 unsuccessful, or one in six.
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> "On the other hand, the sac was not opened in 74. In 5 it failed, under circumstances which would equally have influenced any operation. I therefore leave those out, and take unsuccessful cases, in one of which the gut was wounded, as 17, leaving 52 successful cases, or one in four." (p. 53-4.)

We now address ourselves, though it must be briefly, to the question of the general medical treatment; and here we are more prepared to go the whole length with our author, in the judicious but by no means singular view which he takes of the subject.

Delay, he remarks, is a very rife cause of the fatality attending the operation for hernia; an opinion from which, we presume, no surgeon of experience would venture to dissent. It is, however, quite a different question, what amount of delay is admissible, or desirable; and how long, or to what extent, the taxis should be used. On this subject surgeons hold very different opinions. We do not hesitate at once to class ourselves with those who are disposed to interfere very early, even at the risk of occasionally operating (as the result *might* have proved) unnecessarily. We refer to this subject, because delay is often excused on the score of its being expedient to try every means, including purgative medicines, before having recourse to the knife. Hence the operation, from the necessary fatality attending it, has got into much discredit; and we again repeat that, by inducing a disposition on the part of the surgeon to operate earlier as a rule, Petit's operation has done, and will do, good service,—provided always he possess the requisite discrimination and experience to expose the contents of the sac without reserve, whenever it may be needed, even in those cases which may have been deemed, *à priori*, peculiarly adapted for the newer operation. We entirely agree with Mr. Hancock in his deprecation of purgatives, when exhibited with a view to procure reduction by exciting peristaltic action of the bowel.

The analogy, however, which he draws, by way of illustration, between the condition of the iris and intestine is not very happy; for belladonna unquestionably will act on an inflamed iris, and a very valuable adjunct it is, in thus preventing adhesion in iritis.

The employment of tobacco we regard as equally objectionable; and believe, with our author, that all the advantage which has ever been ascribed to it may be fulfilled by the far more agreeable and safer exhibition of chloroform. We have not great confidence in large bloodletting; there are, however, circumstances, in which this preparative to the taxis should not be neglected, but its indiscriminate use is most objectionable. Young and hale subjects, with recent herniæ and acute symptoms, are the fittest for the experiment; inasmuch as the loss of blood may operate beneficially as a prophylactic, in the anticipation of acute peritonitis.

We have already stated our opinion as to the protracted and forcible employment of the taxis; and there is no lack of confirmatory evidence on this point, to be gleaned from most practical surgeons. We think it, therefore, unnecessary to follow our author through this division of his subject. Suffice it to say, that the tightness of the stricture very often precludes the employment of the taxis almost entirely, and that, too, in very recent herniæ; the tension of the tumour and its exquisite tenderness are sufficient indications of this condition, and then the operation should not be delayed, although the strangulation may have existed but a very short time. These cases are by no means of unfrequent occurrence; we can recall many such, where three or four hours has sufficed to produce all these symptoms, in their full severity; acute umbilical pain is also generally present.

With respect to the after-treatment, it is impossible to lay down any general rules; it must be adapted to meet symptoms as they arise. The early administration of purgatives, we think, with Mr. Hancock, objectionable; but, on the other hand, care must be taken that a loaded condition of the bowel do not act prejudicially to the patient. An injection, or, if required, a moderate dose of castor oil, will suffice to relieve constipation in most instances. Opium, used with caution, is a valuable remedy; and we regard its exhibition, in company with small and repeated doses of calomel, in young and sthenic subjects, as a desirable mode of treatment, to be commenced immediately after the completion of the operation ;—always providing there is not much prostration, and the vitality of the bowel is not endangered from the degree of pressure to which it has been subjected. In short, where peritonitis (local or general) may be reasonably expected, then we think calomel and opium should be given in small doses, every two or three hours. Our author prefers the opium without the calomel, and cites some examples illustrative of his treatment, and the success attending it.

Three tables are appended to the volume ; and a summary, containing the deductions of the author, occupies the last three pages. The tables show severally " the relative frequency of different species of hernia, in 537 cases ; the influence of age upon the result of the operation for strangulated hernia, in 357 cases ; and the influence exerted by the several modes of treatment upon the success of the operation, in 432 cases."

Amongst the deductions which Mr. Hancock considers himself as justified in drawing, the following are the most important and decided :

> " 1. That opening the sac does not increase the danger of the operation, but it is to be preferred as the safer mode of proceeding. 2. That comparatively few cases die of simple peritonitis after the ordinary operation. 3. Incisions made into the peritoneum, with a view to relieve an inflamed condition of that membrane, are calculated to diminish, not augment, the inflammation. 4. Rapid depression of the vital powers, with death, are not to be attributed to opening the sac. 5 The risk of wounding the intestine is less in the usual, than in Petit's operation. 6. Petit's operation, not being applicable to all cases, exposes the patient to the danger attending error of selection. 7. The practice of exhibiting purgative medicines before operating for strangulated hernia, with a view to the liberation of the gut by its own movement, is improper. 8. The successful cases treated by Petit's operation would have been equally successful under the usual treatment ; a very large number of those in which it failed might have been saved, had the sac been opened. 9. The employment of chloroform should supersede the necessity of warm bath, bleeding, and tobacco, in the treatment of strangulated hernia. 10. The injurious effect of purgative medicines, after the operation for strangulated hernia, are shown by the increased urgency of the symptoms, and the fatal results attendant upon their exhibition." (pp. 91-4.)

These, we repeat, strike us as the most important amongst a more detailed list of deductions enumerated by our author. We shall not reiterate our comments on these inferences, but merely state our own conviction, as based upon personal observation, and upon the experience of others. It is this :—Petit's operation may be kept in view as the preferable alternative, when there is no contra-indication ; but we believe the ordinary operation to be that which is applicable to a great majority of cases, including all forms of hernia. We regard Petit's operation as specially applicable to the femoral form of hernia ; also to cases in which the rupture is of recent descent, or, if old, when it has been small and easily and entirely reducible. Further, it is specially applicable to cases in which the symptoms of strangulation, though acute, have been but of short duration. We deprecate, with our author, the use of purgatives before operating, and their early use afterwards. We entirely eschew tobacco; have but little faith in the warm bath or bleeding in aiding the taxis ; and regard chloroform as a valuable substitute for both ; indeed, hernia and dislocation may be included in the same category in making this remark.

Lastly, we approve of opium in most cases, and in many, of calomel in addition, in the after-treatment of patients who have been subjected to operation.

One word more on the taxis, and we have done. A moment's reflection as to the mode in which pressure is applied to a strangulated mass of intestine or omentum, with a view of forcing it through a narrow canal, must at once render obvious to the operator at how great a mechanical disadvantage he is acting; how much better it would be, if he could pull it through from the opposite side. Let the experiment be made with a truncated funnel, filled with intestine, and let the experimenter first try to *push* the gut through, and then reverse the application of the force, by attaching a string around it, and *pulling* it through. Is it impracticable to imitate this latter and far more efficient method, that of traction? We think not. Let the patient's thighs be flexed and rotated inwards; then let an assistant, standing over the patient, raise him or her by both legs, until the whole trunk is fairly lifted from the bed, and the whole weight is thrown upon the shoulders; the pillow having been previously removed from under the head. This posture must be maintained for a short time, and then the buttocks gently lowered and raised again, the surgeon the while keeping his hand on the hernial tumour, and *gently* aiding by taxis the return of the bowel. Such assistance on his part will often not be required, even where the stricture is a tight one, and much pressure will tend to interfere with its success. These remarks apply especially to small, recent, and, of course, reducible herniæ; and to femoral, rather than inguinal. If it fail in such, we should at once desist from any more forcible use of the taxis, being satisfied that it would prove unavailing. The rationale of its success appears to be, that the whole mass of small intestine within the abdomen, of which that in the sac is but an offset, is thrown upwards towards the diaphragm, and must, unless the resistance of the stricture be too great, draw the incarcerated portion with it. Of its success we have no doubt; and cannot too strongly urge its general adoption, in place of the coarse and cruel handling to which recent herniæ are too generally subjected, to the great present anguish of the patient, and his greatly deteriorated chance of surviving an operation if afterwards called for.

After all we have said, it is scarcely necessary to add our thanks to Mr. Hancock for this contribution to practical surgery. His book contains much that is valuable and interesting, although put forth somewhat in the spirit of antagonism of which we spoke at the beginning of this article. We do not, however, quarrel with him on this account, and for the reason there assigned; and we herewith accord him our thanks for placing "the good old method" in as favorable a light as possible before his professional brethren.

ART. XIV.

Report on a General Scheme for Extramural Sepulture. By the General Board of Health. Presented to both Houses of Parliament by Command of Her Majesty.—*London*, 1850. 8vo. pp. 172.

A fastidious and sensitive mind might, perhaps, find something to wound its susceptibility in the funeral rites of most nations. It might not find any solemnity sufficiently awful, any ceremonial adequately expressive, to fulfil its conception as to how the last duties should be paid to the earth about to return to its kindred elements. It might find something repugnant in the sudden dispersion of the atoms of the frame, so lately gifted with vital motion, by the flames of the funeral pile; it might equally object to the mockery of preserving those inanimate atoms, as if the art of the embalmer could obliterate the ineffaceable seal of the King of Terrors. But if a curious inquirer should deem it worth his while to glance over the funeral rites of ancient or modern times, he would find that, however in some points they may fall short of his conception, such ceremonials have always been conceived in a spirit of grand and solemn poetry. The Greek, crowned with flowers, and stretched on his last couch, formed of fragrant and precious woods, as if the flames which were to consume him should spring from no common source; the Brahmin, carried solemnly to the banks of his sacred stream, and then gently committed to the purifying waves; the Scotch Highlander, buried at night, by the light of the torches of his clan; the Red Indian, covered with his trophies; the Karen, laid in his solitary forest grave, amid the melancholy sound of the wailing death-song of his tribe;—present so many examples of the same spirit of reverence, grief, and humility, which led the early Christian church to throw around the burial of the dead that most impressive ceremonial, in which are so marvellously blended, pity, hope, and humble intercession for the departed, and warning admonition for those whose turn must shortly come.

Even those nations which we, in these days of boasted progress, are accustomed to regard as little better than barbarians just emerging from the shade of their primitive forests, exhibit, for the most part, in their funeral solemnities, a spirit of which Christian communities could not be ashamed. The shortness of life, the frailty of mortality, the dread mystery of that strange secret which all men must sometime know, impress the Caffre or the Dyak, no less forcibly than the Englishman or the German.

The customs of our own country, if they cannot vie in grandeur and impressiveness with the stately ceremonial of the Assyrians or the Greeks, are yet full of a poetic and religious spirituality, which has a more lasting, if not so immediate and thrilling an effect. The warning bell, the slow procession, the service of the Church, in which the mind is at once cast down by the contemplation of mortality, and exalted by the promise of a diviner life; the lowering of the body into its narrow bed; the dull earth which rings upon the coffin lid; and the memorial which marks the spot as one ever after sacred and dear to the mourner; are all calculated to satisfy the instincts and desires of those, who pay the last tribute to their brother then departed.

In order to encourage these feelings still more, the Church, in the eighth century, commenced the practice of allowing the dead to be buried in the vicinity of the churches, so that at once the body might be laid in undisturbed and consecrated ground, and the survivors might associate that holy spot with the place in which they assembled to discharge the rites of religion. In this way, also, as the churches stood generally at some little distance from the mass of dwellings, the resting-place of the dead was not disturbed by the harsh and discordant murmurs, or the incongruous bustle, of those who had succeeded to the feverish strife and turmoil of existence. When, indeed, one of the active agents in life's busy game turned his footsteps for one moment into the still inclosure, shaded by its funeral boughs, he could not fail to be recalled by the quiet sanctity of the place, to a recollection of the fate which waited him, and of the mode of life which ought to be a preparation for that fate. So, also, the bodies of the dead were then allowed to resolve themselves into their original atoms, without the population suffering from the inevitable emanations; for, as every inch of ground was not in those days worth its weight in gold, the cypress and the yew were permitted to plunge their purifying roots into the ground, and to transmute into their own beautiful forms those particles which had ceased to constitute the fleshly temples of immortal souls.

Nor were these rites, this ceremonial, these influences on the minds of the survivors, intended for one single class of the community. The Christian Church knew no differences of rank, in the day when the common lot has rendered such differences impossible; whether poor or rich, there was devised the same farewell for the dead,—the same solemn admonition for the living. The rich man might indeed sleep in his vault, and the "rude forefathers of the hamlet" in their graves of turf; but the same influences sanctified both, and the simple cross over the mound of earth was as sacred as the marble sepulchre or the heraldic pomp engraved in brass.

If any one, knowing the intentions of our Church, in choosing the occasion of burying the dead for the inculcation of its most solemn lessons, and being impressed at the same time, with the sacredness of keeping uncontaminated the relics of mortality, happens to take up the work at the head of our article, he will, unless Mr. Walker's labours or the disclosures of the daily press have prepared him for it, be filled with a mixture of horror, astonishment, and disgust, at the mode in which, in the nineteenth century, and in the centre of the civilized world, the funeral obsequies of the citizens of the English metropolis are conducted. But lest, by any chance, any of our readers should have seen none of these works, and should be ignorant how the bodies of 52,000 persons are annually disposed of in London, we will, in as few words as possible, condense the facts which the Board of Health has so elaborately stated.

During the last 150 years, and particularly in the last half-century, London has been literally rising like magic out of the earth. On all sides, the suburbs and the open country around have been invaded by its streets of bricks. Churches, built even lately, and to which is still applied a term which signifies that once they stood in fields, now stand almost in the heart of the city; the dwelling-houses are carried up to the churchyard walls; and the habitations of the living and the abodes of the dead are in closest proximity. Thence it comes, that the silence of the graveyard is violated by the hum of common life, and the stillness of the tomb is a phrase which has now no meaning. The old solemnity of the burial place has been destroyed, and the steps of men, absorbed in the cares of trade and speculation, cross, without a moment's reflection, over the consecrated ground. Nay, some churchyards have undergone the most complete desecration, and are used as receptacles for refuse and rubbish, like a dustbin or a dunghill.* The growth of the city has been so rapid, that the graveyards, many of which have been used for centuries, have become filled to excess; fresh corpses are each day brought to places already crammed to overflowing. To make room for these new inmates, the rank and dark earth, which contains yet recognisable remnants of human beings, is shovelled aside, and a hasty grave receives the recent comer. Before corruption has done its work, however, the newly-made grave may have to be again disturbed, and the bones, and even the undestroyed flesh, may meet the eye of the passer-by. In some of the poorer districts, it has been proved that six or eight bodies may be successive tenants of a grave, in a space of time during which a single body could not properly decay. In other churchyards, the bodies of paupers are crowded one upon another in a single grave. Gradually, on account of this influx of corpses, the soil of the churchyards has, in the poorer districts, been raised two, three, and even four feet within the last few years. This rank soil, composed of the *debris* of mortality, turned continually by the spade of the gravedigger, inflicts a terrible retribution on the inhabitants of the surrounding houses. Noxious gases are continually emitted, which are both themselves injurious to health, and also afford a medium for the transmission of pestilential agents. In the vicinity of some of these churchyards, it has been stated that severe complaints almost invariably prove fatal; and the evidence now adduced by the Board of Health sufficiently proves, that this pestilential atmosphere formed a fit nidus for the poison of cholera during the last fatal summer. Into these graveyards, in all not 220 acres, and already so full, 50,000 bodies are annually conveyed. From the decomposition of these bodies, it has been calculated, that 2,572,580 cubic feet of gas, deleterious to health, are given off: and the greater part of this is exhaled into the atmosphere. During the last thirty years, according to the estimate of the Board of Health, there have been interred, in a space not exceeding 318 acres, *a million and a half* of bodies; and in the next thirty years, if the same state of things is allowed to continue, to this decaying mass a number of bodies, equal almost to the whole population now living in this great city, must be added. Consequently it is to be feared that the influence of the gases given off from the putrefying bodies may take a wider and more deadly range; and whereas now there is no doubt that a large amount of sickness and many deaths are attributable to these exhalations, in another generation the poisonous miasmata may breed a pestilence, and cause a terrible mortality.

But the exhalations into the atmosphere are not the only evil; the fluid portions of the decomposing body pass into the earth, drain into sewers, emitting from untrapped gully-holes offensive odours, or transude into wells, contaminating drinking water, and probably causing in this way some ill-understood diseases.

All these points are urged with great force in the Report of the Board of Health, and the following quotation expresses their deliberate, and, to the best of our belief, most true conclusion:

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* See page 23.

> "But with reference to the metropolis, with the state of which we are at present principally concerned, we recall attention to the main facts established by the whole of the preceding evidence. From the replies to queries issued by the General Board of Health, it appears that the number of public and private burial-grounds at the present time in the metropolis is 138, but this cannot be taken as the actual number, since a great many parishes have not yet sent in their returns. The total number cannot be less than 200, and is probably somewhat more. There are then in London, situated at various distances from each other, and each differing in extent, 200 centres of more or less pollution, each pouring off unceasingly, day and night, its respective contribution of decaying matter, but the whole together, reckoning only the gases from decomposing human remains, amounting, as we have seen, in one year, to upwards of two millions and a half of cubic feet. Whatever portion of these gases is not absorbed by the earth—earth already surcharged with the accumulations of centuries—and whatever part does not mix with and contaminate the water, must be emitted into the atmosphere, bearing with them, as we know, putrescent matters perceptible to sense. That these emanations do act injuriously on the health of the people resident in the immediate neighbourhood of the places from which they issue, appears to us, by the evidence that has been adduced, to be indubitably established. From the law of the diffusion of gases, they must be rapidly spread through the whole of the atmosphere that surrounds the metropolis; and though they thereby become diluted, and are thus rendered proportionally innocuous, yet that they do materially contribute to the contamination of the air breathed by two millions of the people, cannot, we think, admit of any reasonable doubt. We submit, therefore, that a case is made out for the total prohibition of interment in the metropolis, on account of the injury resulting from the practice to the public health." (p. 50.)

The deleterious effects resulting from our present system are not, however, the only evils: The sacredness of the funeral service, in the poor districts of London, seems to have suffered an equal violation with the places in which it is performed. On account of the number of burials in so small a number of churchyards, the ministers of religion have abandoned something of the form ordered by the church, have omitted portions of the service unless payment has been specially made for these parts, and have occasionally hurried the whole thing over with indecent haste. The constant familiarity with scenes of death and burial seems also to have rendered the population of these districts perfectly callous to the lesson conveyed in the ceremonial of interment. They regard the proceeding with a stolid indifference, or sneer at it with a ribald jest. The clergymen who are called upon to officiate, in many of these places, complain exceedingly of the conduct of the population which surrounds them.

> "If," says the Rev. William Stone, "the working-classes of a populous city are less awfully affected by the sight of death, from an unavoidable familiarity with it in their own homes, it is to be feared that they and others meet with much to prevent or impair a wholesome sensibility upon it in public; for there the touching associations of a burial, and the sublime spirituality of our burial service, are broken in upon by the exhibition of the most vulgar and even ludicrous scenes of daily life. The eastern end of my parish ground, for instance, abuts upon Brick Lane, one of our most noisy and crowded thoroughfares, and at one corner stands a public-house, which, of course, is not without its attraction to all orders of street minstrels. Indeed, as my church extends along one side of another crowded street, I have had most inappropriate musical accompaniments, even during that

> part of the burial service which is performed *within* the church. My burial-ground is partially exposed to the street at the west end also; and there, as at the east, it is liable to be invaded by sounds and sights of the most incongruous description. Boys clamber up the outside of the wall, hang upon the railing, and, as if tempted by the effect of contrast, take a wanton delight in the noisy utterance of the most familiar, disrespectful, and offensive expressions;—of course all attempts to put down this nuisance from within the burial-ground serve only to aggravate it, and nothing *could* put it down but a police-force ordered to the outside every time that burial takes place. To this wilful disturbance is added the usual uproar of a crowded thoroughfare,—whistling, calling, shouting, street cries, and the creaking and rattling of every kind of vehicle,—the whole forming such a scene of noisy confusion as sometimes to make me inaudible. On all these occasions, indeed, I labour under the indescribable uneasiness of feeling myself out of place. And yet the exposure of my burial-ground is but partial, and is little or nothing compared with that of many others. The ground is hardly less desecrated by the scenes within it; on Sundays, especially, it is the resort of the idle, who pass by the church and its services to lounge and gaze in the churchyard. It is made a playground by children of both sexes, who skip and scamper about it, and if checked by our officers, will often retort with impertinence, abuse, obscenity, or profaneness. I generally have to force my way to a grave through a crowd of gossips, and as often to pause in the service to intimate that the murmurs of some, or the loud talk of others, will not allow me to proceed. I hardly ever witness in any of these crowds any indication of a religious sentiment. On the burial of any notorious character,— of a suicide, of a man who has perished by manslaughter, of a woman who has died in childbirth, or even of a child who has been killed by being run over in the street,— this vulgar excitement rises to an insufferable height. If, in such a case, the corpse is brought into my church, this sacred and beautiful structure is desecrated and disfigured by the hurried intrusion of a squalid and irreverent mob, and clergyman, corpse, and mourners are jostled and mixed up with the confused mass, by the uncontrollable pressure from without. (pp. 53-4.)

These several evils, which have from year to year augmented with the growth of London, and which have been urged over and over again by Mr. Walker, and those who have followed in his footsteps, have at last wrought out, we hope, their own remedy. It has been for some time obvious to all, that if we desire to consult the health of the living, we must remove the dead from among them; and that if we wish to preserve the respect due to the dead, we must not allow their last resting-places to be as common and as open as the market or the thoroughfare. A "dim religious light," a light falling through dark evergreens and sad cypresses, and not the "light of common day," reflected from pavements and windows, and obscured by the smoke of factories, should disclose the funeral procession, if we wish to impress the mourner in the way the church intended. To breathe the solemn words of the church service, when the air around is filled with profane, vulgar, and irreverent accents, is a gross mockery.

It has, then, been long felt that, both in a sanitary and in a religious point of view, the customary mode of burying our poor in the metropolis was altogether wrong and demanded emendation. As usual, the recognition of the evil preceded that of the remedy. At first, attempts were made by private individuals to improve the existing state of things, by the construction of Cemeteries at some little distance from town; but it was soon found, that though the rich availed themselves of these places, the poor were totally unable to profit by them. Gradually it became evident that this was one of those cases with which Government alone can adequately deal; and at last, to all appearance, Government is in good earnest taking up the question, and proposing the remedy which is wanted.

This remedy is stated at length in the Report of the Board of Health. To say that we perfectly coincide both in the opinions of the Board, and in the advisability of the plan they propose, is almost superfluous. Any change must be an improvement; but the change now proposed is not only a good alteration, but, we believe, the very best that could be devised. We have no hesitation in stating, that the Board of Health have done most wisely in dealing boldly with the question; and we believe that they will be supported by all who will take the trouble to examine the question for themselves.

The plan proposed by the Board of Health is simply this:—Every existing graveyard in London is to be closed; no more bodies are to be thrown into them; burial-grounds are to be made outside the city, apart from the busy tread of men and the hum of commerce; but these burial-grounds are to be rendered easily accessible, even to the very poorest. The pauper shall be carried there as solemnly as the peer, and shall be buried with equal decorum; the exhalations from this ground shall exert no poisonous influence; and the grounds themselves shall present the appropiate character of the mausolea of a great city.

In order to fulfil all these necessary conditions, the Board proposes to form a vast cemetery at Erith, on the Thames, several miles below London, and to enlarge Kensal Green and other cemeteries, which are well placed for certain quarters of the town. The advantages of having the principal cemetery at Erith are, its easy access by water, its distance from London, and the actual existence of a large and suitable piece of ground. In order to convey bodies to this cemetery, the Board proposes to have receiving-houses at convenient distances on the banks of the Thames, to which the relatives may convey the body, which is afterwards to be placed on board a steamer, for conveyance to Erith.

But the scheme proposed will be better understood by quoting the words of the Report:

> "From the considerations and evidence which we have thus presented, we have arrived at the following conclusions, which we submit as the foundation of a General Scheme for Extramural Sepulture:
>
> "1. That, with a view to remedy the evils of intramural interment, as at present generally practised, it will be necessary to obtain separate acts for London and the country.
>
> "2. That, after the passing of the Act for London, all interments in churches and within the precincts of the metropolis, except in special cases, under licence issued by the Metropolitan Interment Commission, should, as soon as the necessary preliminary arrangements are completed, be strictly forbidden.
>
> "3. That public burial-grounds be provided at a suitable distance from the metropolis: that, with a view to prevent the near approach of the population to such burial-grounds, no new dwelling-houses be permitted within a distance proportioned to the size of the cemetery and the number of interments, for which it is calculated; and that, in order to render possible the advantages of extramural interment, without, at least, enhancing the cost to the poor, to secure the proper decencies of burial, and to put an end to the injurious influence to health occasioned by the careless and unchecked disposal of bodies, it be, with the exceptions above referred to, unlawful to inter in any other place than the public burial-grounds within the prescribed precincts.
>
> "4. That, considering the river as a highway passing through the largest extent

of densely-peopled districts, the facilities for establishing houses of reception on its banks, the conveniences arising from the shorter distances within the larger portion of the same area for the removal of the bodies to such houses of reception, the advantages of steam-boat conveyance over that by railway in respect to tranquillity, and the avoidance of any large number of funerals at any one point at any one time, and of any interference with common traffic and with the throng of streets; and, lastly, taking into account its great comparative cheapness, it is desirable that the chief metropolitan cemetery should be in some eligible situation accessible by water-carriage.

"5. That it be unlawful to inter in any burial-ground more than one corpse in one grave.

"6. That the price of funerals be regulated according to a series of scales, or classes; and that the whole expense of each funeral be included in the charge fixed for each class, and be paid for in one sum.

"7. That, it being essential to the success of the proposed improved practice of interment that it be administered on one system, under one responsible authority, all public burial-grounds, and the whole arrangement for burial be intrusted by commission to a small body, not exceeding five, of whom not less than one should be paid, specially qualified and responsible.

"8. That in every cemetery there be a part consecrated and a part unconsecrated, and that in the unconsecrated part, there be erected a church adapted to the purpose, and fitted also for full services according to the doctrine and discipline of the Church of England; and that in the unconsecrated part there be erected a commodious chapel.

"9. That the new consecrated grounds be under the same ecclesiastical jurisdiction in matters spiritual, and in respect to the performance of the service and the superintendence of the chaplains, as the parochial burial-grounds for which they are to serve as substitutes now are; that the inhabitants retain the same right of sepulture as they would have had in their respective burial-grounds, subject to the general provisions which may be necessary for the public health and the convenience of sepulture; and that the incumbents have the right of performing the burial service for any of their parishioners in the public cemetery, subject to the regulations established for the same.

"10. That, inasmuch as the fees and voluntary offerings paid to the clergy constitute one of the least of the charges incident to interment, and at the same time form, in some instances, almost the whole, and, in many instances, the greater part, of the funds on which they have been accustomed to rely, provision be made on compensation to the benefice, on account of the receipt of fees for interments, for the average of three years before the passing of the Act.

"11. That compensation be made to the proprietors of private-burial grounds and to the holders of cemeteries established by Act of Parliament, according to the awards of juries.

"12. That provision be made for placing the existing burial-grounds under such regulation as may be most conducive to the public health and advantage.

"13. That although, if the whole work were to be done afresh for the first time, one part of the general scheme of extramural cemeteries would have included the formation of a corresponding set of intramural officers to receive orders, to give instructions, to collect and enforce payments, and to transact other general business; yet, to avoid the unnecessary creation of new offices, it be provided that the present parish clerks, or sextons, or both, as the case may be, should be retained, and their offices made use of for maintaining the parochial connexion with the cemeteries.

"14. That the whole immediate outlay for carrying into effect this scheme may be obtained without any aid from the Treasury, and without the levying of any new rate, in the following way: that is to say, by loan; the principal and interest of such loan to be defrayed out of the receipts of the cemeteries, security being given by Act of Parliament for making good from the rates whatever deficiency may occur, should there be eventually any.

> "There is reason, however, to believe, that along with equitable arrangements as to compensations, and even with a considerable reduction on the existing charges for interment, there will be no deficiency to be defrayed by rates." (pp. 87-9.)

Our space will not allow us to enter into the details of this plan, which are however most carefully laid down by the Board of Health. Reception-houses will, beyond a doubt be most useful for the poorer classes, who now sometimes retain a corpse in a room with many persons for several days. The rich, of course, will hardly make use of these places. The methods of conveyance to the cemetery or cemeteries will necessarily vary in each particular case; but we see no reason to believe that any dfficulty can exist in arranging matters of this kind.

In conclusion, we must beg our readers to study this Report on Extramural Sepulture for themselves. It only requires to be read, to secure assent. For ourselves, we are happy to see the Board of Health take up and carry out such a great and important reform,—a return, too, which it is, on all accounts, well to have first attempted. When it has satisfactorily completed this task of restoring to the ceremony of the Church the solemnity of which it has been deprived,—of destroying this constant familiarity with scenes of death, which the existence of churchyards in the very heart of our population has caused,—and of neutralizing the deleterious influences, in a sanitary point of view, of the present system of intramural interment, the Board will have accomplished the first of a series of social changes, which, we are convinced, will be without parallel in the beneficial effect they will produce on the dense masses of our labouring population. We trust most sincerely, that all their future steps may be marked by the same good sense and sagacity, which have dictated this Report on Extramural Interments.

Art. XV.

The Hunterian Oration for 1850. By Frederic C. Skey, F.R.S., F.R.C.S., Assistant-Surgeon to St. Bartholomew's Hospital, &c.&c.—*London,* 1850. 8vo, pp. 44.

Mr. Skey's Oration is even more discursive than these performances usually are; there is, however, a prevailing endeavour, which manifests itself in the treatment of almost every subject introduced, to elevate the character of the profession, by setting before it the nobler aims and motives by which the conduct of the medical practitioner should be influenced, and by urging the importance of a superior mental training as an adequate preparation for his duties. On these points he has our hearty concurrence; and we do not think that such considerations could be brought forwards at a more appropriate time, or a more fitting place. The following admirable passage occurs in the eulogium on Hunter, with which it seems the established custom that every Hunterian Oration should commence, however difficult it now becomes to say anything new on such a well-worn topic:

> "Ingenuous, disinterested unreserved in his communication of knowledge, Hunter exhibited many of the excellencies that mark the true philosopher. From his eminence above the world, he surveyed the great book of Nature. His thoughts expanded by a natural elasticity, in proportion as he was elevated above the grovelling

passions and influences of the world. With a love of Nature was inseparably interwoven a still stronger love of *truth*. It is impossible to read the history of his laborious investigations, his personal sacrifice of time, of health, and of property, without believing that to the ardour and enthusiasm which incited him to toil over the great field of Nature, he added with equal force an undeviating adherence to *truth*.

"A spirit of arrogance, of self-esteem,—a disposition to depreciate the works of a competitor or rival, is the characteristic of the pretender to science, and exposes the unsoundness of the motives which carry him on in the pursuit of knowledge. And the cause is obvions; for, if animated by a true love of science, as the primary motive of exertion, any contribution to his favorite study is hailed with gladness; whereas the same contribution would be received by the empiric, with coldness; if not with disapprobation.

"How broad is this distinction! how unlike the men! how dissimilar the motives! How often does the desire of distinction, or of notoriety—the ambition of pre-eminence above others, dictate our efforts and develope an envious and uncharitable interpretation of the exertions of those who venture to compete with us in the struggle for fame!

"In the great temple of knowledge, there are no contentions for place, or for personal distinctions, no strivings for pre-eminence. Among its true votaries, a spirit of genuine fraternity prevails, that harmonises the soul. He who would become its occupant must throw aside all sinister and indirect motive, every degrading thought, every selfish passion, as alike derogatory to himself, and injurious to his cause. Between two students of Nature, their common object, their identity of thought and pursuit, maintain an harmonious interchange of kindly intercourse. They have no motives for rivalship or ill-will. They are directed by one common, and by the same high motive; they have neither time nor tendency to step out of the direct path of inquiry, to indulge in angry passions, to deal in personalities, to question motives. On one distant object their eyes are fixed; to reach this goal is their common end; and applying to their journey onward the principle of mathematical truth, they pursue their course in a straight direction, as the shortest given line between the two points." (pp. 3-4.)

From John Hunter, Mr. Skey passes to William Clift, whose decease, during the last year, has broken one of the last links that connected the illustrious founder of the Museum with the present generation of Anatomists and Surgeons. No one could have ever come into contact, even casually, with that most amiable and excellent man, without at once recognizing the "child-like simplicity and single-mindedness" of his character, or without perceiving how completely his whole soul was possessed with an affectionate veneration for the memory of his aged master. But to few has it been known, how severely his fidelity and attachment were tried in the earlier part of his career; and we gladly avail ourselves of the facts in his history supplied to us by Mr. Skey, that we may lead our readers "to do justice to one who was *great* because he was *good*."

William Clift was born at Burcombe, near Bodmin, in 1775; and was received into Mr. Hunter's house as an apprentice in 1792, having been recommended to him by a lady resident at Bodmin, on the ground of his promising abilities and graphic powers. The personal, and to a certain extent, the mental resemblance which he bore to John Hunter, has been the theme of frequent observation, and has given rise to the suspicion that Clift was really his master's illegitimate son,—a suspicion which, having been once hinted to Mr. Clift, elicited from him the characteristic reply that "he should only be too happy were its truth confirmed." We have no new light to throw upon this question, and must leave it where we found it; only remarking that the statement regarding his birth and his introduction to Hunter, given by Mr. Skey on the authority (we presume) of his surviving connexions, does not seem to us to afford any clear disproof of the hypothesis.—Our readers can scarcely need to be reminded of the long delay which took place in the purchase of the Hunterian Museum by the Government; and Mr. Clift's conduct during this anxious period was such as must for ever entitle his name to most honorable remembrance.

> "Mr. Hunter died in 1793, from which date until 1800, when the collection was purchased by the Government, it was placed under the exclusive care of Mr. Clift, *who, with two gallons of spirit meted out occasionally, and seven shillings a week granted for his own support out of the limited funds at the disposal of Mr. Hunter's executors, at a time when the quartern loaf was occasionally at two shillings, contrived to maintain the entire Museum, valued at that time by Sir Joseph Banks and others at £20,000, in a sound condition for seven years;* his additional occupatio nbeing that of culling from the mass of manuscripts also placed under his charge, such knowledge as would enable him to class, and otherwise profitably arrange it. 'His merit,' says one man who was especially well calculated to appreciate such services, 'consisted in his single-minded fulfillment of arduous duties under peculiar difficulties, and his noble self-devotion to the achievements and memory of his great master." (pp. 6-7.)

Mr. Clift was subsequently engaged for several years in assisting Sir Everard Home in (nominally) preparing the catalogue of the Museum; our readers need not be told, however, that Sir Everard's labours were rather devoted to his own honour and glory, than to doing justice to his charge; and he availed himself of the accurate pencil of Mr. Clift to illustrate his numerous papers on comparative anatomy in the 'Philosophical Transactions,' the materials for most of which were drawn (there can scarcely be a doubt) from the Hunterian MSS. His nefarious destruction of these MSS. led to an alienation between himself and Mr. Clift, the consequences of which were most injurious to the latter:

> "The shock which poor Clift's nervous system had sustained after his rupture with Home, and the catastrophe of the Hunterian manuscripts, had produced an almost morbid apprehensiveness of putting any description into print. He never could assure himself of its accuracy and its conformity with Hunter's opinions. This state of indecision, and the loss of his usual clear intellectual power, increased after the fatal accident that befell his only son; and his chief literary and scientific occupations, until he retired from the College, consisted in copying out from various periodicals and works, whatever he thought might elucidate such preparations as especially related to pathology." (pp. 8-9.)

That Mr. Clift's immediate contributions to science, at least those bearing his name, were few, appears to have been a consequence of the circumstances just alluded to. Some of these contributions, however, were by no means unimportant. In a paper communicated to the Royal Society in 1815, he experimentally demonstrated the fallacy of Le Gallois' doctrine of the dependence of the action of the heart on the spinal cord in fishes; and he subsequently communicated to the Geological Society a very careful and accurate description of the remains of the Megatherium sent home from Buenos-Ayres by Sir (then Mr.) Woodbine Parish. But, as Mr. Skey justly asserts, most of the works on the fossil remains of vertebrated animals, which have appeared since the publication of Sir E. Home's first paper on the 'Proteosaurus' in 1814, until a very recent period, are more or less indebted to Mr. Clift; and very unequivocal have been the acknowledgments of his services by Cuvier, Buckland, Mantell, and other high authorities in Palæontology. The highest testimony of the productive labours of Mr. Clift, however, is afforded by the present condition of the Museum itself, "which is a lasting monument of the integrity and activity, as well as of the honesty, of his stewardship." He retired from the College in the year 1842, on the liberal allowance of £400 per annum, thus receiving in the evening of his days the well-earned reward of his early sacrifices; and died on the 20th of June 1849, having survived his wife, to whom he had been united for more than fifty years, and to whom he was tenderly attached, by a period of six weeks only.

The biographical notice of Mr. Clift is followed by one of Mr. Aston Key, on which we need not dwell, as we have already paid our own tribute to his distinguished merits as a surgeon. This, again, is followed by a short memoir of Mr. Morton, whose short career was marked by many excellencies, and who would undoubtedly have arrived at distinction in his profession, but for the baneful habit, which (as is now well known) checked his professional advancement, and was a principal source of that despondency which brought about the premature termination of his life. It is creditable to Mr. Skey that he has not confined his memorials of departed worth to the (so-styled) *pure* surgeons; but has thought worthy of special mention one who occupied for a long period a prominent position in his profession, although that station was in the rank of General Practitioners. Mr. Pennington, early in life, we are informed, "took a high station in the profession as a family medical adviser; and it was his no inglorious boast that, at one time, he attended professionally every Cabinet Minister, and every Judge upon the bench." His high reputation with the public appears to have been by no means a factitious one, but to have fairly rested on a well-grounded confidence in his professional skill. As the favoured pupil of Percival Pott, he enjoyed unusual advantages in early life, and these he improved by thorough devotedness to the acquirements of professional knowledge. "The experience of his later years was derived entirely from observation, the most valuable school of medical proficiency; and among his medical friends, his powers of diagnosis were considered of a very high order." To his private worth, Mr. Skey bears the following honorable testimony:

> "He was practically a most kind and benevolent man; his philanthropy was large and generous, his sympathies were readily enlisted, and his purse opened to distress and difficulty, more especially among his younger professional brethren. His mind revolted from an act of meanness or dishonour, and I believe it may be said of him, without flattery to his memory, that he never sullied his integrity by a single ungenerous or sordid act during a long life of unexampled professional activity.—Mr. Pennington died, in the month of March last, in his 85th year." (pp. 17-18)

Having thus commemorated the chief of those who have been removed by death from among the members of his College during the last year, Mr. Skey turns to the consideration of the present state of the profession; and ably sets forth the intellectual and moral qualities which its study and practice may fairly claim. "Nor is this condition," he continues, "altogether unmerited by the practitioner of medicine. *With largely increased resources, the profession of medicine is at the present day a degenerate pursuit.*" We must own ourselves utterly unable to comprehend the grounds for this extraordinary assertion; and they do not seem to us to be rendered one whit more evident by the explanation which Mr. Skey has offered in his preface:

> "The term 'degenerate,' as applied to the profession of medicine, has been objected to. In justification of its employment, I would urge on the recollection of the reader, the condition of the profession at the latter end of the seventeenth century. At that time the physician monopolised the entire rank and name of the practitioner of medicine,—the surgeon was a mere operative, identified with a menial trade, and the apothecary, a drug vendor, having, like the surgeon, no claim to medical knowledge, *quoad* the treatment of disease, as may be inferred from the following lines from Dryden:—
>
> "Physicians from the tree have found the bark,
> They labouring for relief of human kind,
> With sharpened sight some remedies may find,
> The apothecary-train are wholly blind."—13*th Epistle.*
>
> While Pope, in a letter to his friend Allen, says, 'Physicians' (that is, medical men) 'are among the most agreeable companions, the best friends, and the most learned men I know.' Am I not justified in assuming, then, that taking our profession as a whole, the entire body is degenerate from its former eminence?" (Preface, ix-x.)

It is to be remembered that the practice of the physician, in the times referred to, lay almost exclusively among those who could afford to pay his fee; and those who could not were left to the mercy of the barber-surgeon and the apothecary, who, however ill qualified for the task, were still the ordinary medical attendants of the masses of the population. We may, if we please, deny that they practised medicine in the noble and scientific acceptation of that term, their treatment being, it may be admitted, much on a par with that of the counter-practising druggist of the present day. But still they were *the* medical attendants of the masses; and the elevation of the barbar-ous (if we may be excused a bad pun) chirurgeon into the accomplished surgeon, and that of the ignorant apothecary into the educated and intelligent general practitioner, might surely be held to counterbalance a grievous decadence in the higher and more select ranks of the profession. But we altogether deny that any such decadence has taken place, and hold that the physicians of our day are, taken as a mass, men of as high intellectual culture, of as great professional skill, and of as complete fitness for the companionship of the most accomplished *literati*, as they were in what Mr. Skey seems to consider as the palmy days of the profession. The difference in their position, such as it is, depends in great measure upon the spread of that higher grade of general education, which was, in Pope's days, the almost exclusive prerogative of physicians and divines; so that the former were almost the only individuals, whose society could be congenial to those who regarded intellectual attainments as the chief title to their notice.

Although we are far from participating with Mr. Skey in his idea of the *degeneracy* of the profession, yet we are fully in accordance with him in the belief that its present position is far below that which it ought to hold in society, and that measures are urgently required for its elevation. The chief causes of depression are ranked by Mr. Skey as follows: 1. The want of high-classed education. 2. The low standard of medical ethics. 3. The present imperfect state of the law. 4. The absence of public and national honours. Of these four evils, the remedy for the first two must come directly from ourselves; that of the two latter can doubtless be gained, if the whole profession should be agreed upon the desirableness of it, and should unite in requiring it from the Government. In his observations on the first of these topics, we are in hearty accordance with Mr. Skey; and if the subject had not so recently been before us on more than one occasion, we should have been glad to transfer the whole of his remarks to our pages. We must satisfy ourselves, however, with the following sentences, which place in their true light the essential purposes of education:

> "The object of education is twofold: First, to develope the powers of the mind; to teach it to think, to reason, and to remember; and secondly, to apply the powers thus obtained to the acquisition of knowledge. The unfolding and developing mental power, in the endeavour to comprehend the resources of the great world around us, and ally those powers with the highest purposes, this is to realise the great end of life itself. "*It is mind* (says Channing) that does the work of the world." Mind is the great leveller, that blends all the arbitrary distinctions of social life." (pp. 21-2.)

After noticing the study of the classics, and that of the exact sciences, as the fundamental requirements of a liberal education, Mr. Skey proceeds:

> "I conceive that the almost universal neglect of the pursuits in early life, and the want of cultivation both of philosophy and general science, are among the chief causes by which medicine is degraded at the present day; and that unless by a general act of the Colleges which preside over each department of the profession, rendering some form of *preliminary* education in these branches of study compulsory on those destined to become members of our body, the entire removal of all the other causes combined, will fail to extricate it from the degenerate position it now occupies." (pp. 23-4.)

Mr. Skey then graphically delineates the evils of the present system of apprenticeship; and thus concludes this division of his subject:

> "The construction of society demands a distinction in the grades of the medical profession; the rewards of exertion must be necessarily unequal in value; his physical relations must regulate in some measure the nature and extent of his occupations, the value of his time, and the rank he holds in society, but the giant evil of the day is want of education. The quantity or degree may be regulated by the future position and means of the student, but all should be educated in mind and manners up to the level of good society.
>
> "I conceive that education is required by all, whether rural, provincial, or metropolitan; but in every grade his general acquirements as to his competency for this high pursuit should be tested by actual examination; and I rejoice to think that the Council of this College, under the superintendence of its distinguished President, who have at heart the earnest desire to promote the highest interests of that department of the profession over which they preside, have acknowledged the necessity, by taking the initiative on this subject, and instituting examinations in classical and mathematical knowledge, for all future junior candidates for the rank of Fellow of this College; and on this head I have only to express my regret, that this important requisition is not made referable to the *first*, rather than to the *last*, stage in the career of the student." (p. 25.)

We heartily concur with Mr. Skey's closing remark. The system of examination for the Fellowship, which has recently come into force, appears to us equally erroneous in theory and in practice: in theory, because the greatest benefit of the literary and scientific attainments now exacted, is exerted in *preparing* the mind for the acquirement of professional knowledge; and in practice, because we hold it to be most injudicious to draw off the attention of the student, during his professional training, to subjects which have no direct connexion with it; and to expect him, when he presents himself for examination for the fellowship, not merely to be conversant with anatomy, physiology, surgery, and surgical pathology, but also to be sufficiently "well up" in Greek, Latin, French, ancient history, arithmetic, algebra, geometry, and physical science, to be able to pass an examination which will probably be at least equivalent to that required for graduation in arts at Oxford or Cambridge. Further, we hold that in requiring such an evidence of a superior education from candidates for the Fellowship alone, the college has taken a step far less useful, than if it had required some proof of an adequate preliminary education from those who seek to qualify themselves for the ordinary Membership. For the more extended course of professional study required from the candidates for the Fellowship, is itself an education of no mean value; and we believe that we are fully justified in the assertion, that no one is likely to attain that distinction (we mean, of course, by examination,) whose intellectual qualifications are not of a high order. It is the mass of the profession, which most urgently requires to be elevated by this method: and until some such test is applied universally, we see little benefit in the system recently come into play. In fact, its beneficial tendency appears to us to be almost counterbalanced by the disadvantages to which we just now alluded. We certainly should not desire to see every youth who is about to enter the profession, required, not merely to translate passages from Herodotus and Homer, Cicero and Virgil, and French classical authors, into English, but also to translate passages of English authors into Latin and French; but such a knowledge of Latin and French, at least, should be insisted on, as would enable him to render passages from these authors into English; and he should be expected to be able to write his mother tongue with grammatical correctness, if not with elegance. The mathematical and physical requirements of the fellowship examination do not seem to us at all too high, and great benefit would be derived from adding the rudiments of chemistry and of natural history to the list. From those who contemplate going on to the fellowship, a higher examination in classics and history, including Greek, might be superadded; and this would, no doubt, be undergone by every youth whose previous education had fitted him for it, in order that he might be prepared for the acquirement of the higher professional honours, if he should cherish the laudable ambition which would lead him to seek for them. Or such an *additional* examination might be postponed to the same period with the present one, without being liable to the objection we have already stated to the latter, the range of subjects being much less. What we propose, then, is simply this,—that *every* youth, before entering upon his professional studies, shall undergo such an examination as shall test (as far as any such method *can* test) his fitness for entering upon them; whilst those who aspire to the fellowship shall give evidence of more extended acquirements in the *literæ humaniores*, either at the same period (which most would prefer), or even after they had gained the membership—thereby opening the door of the fellowship to those who had been led by a change of circumstances, or by their own awakened ambition, to seek the higher grade, from which they would be permanently excluded were Mr. Key's plan of *requiring* their classical and mathematical examination to take place at the commencement of the medical curriculum, to be adopted without modification.

Although the want of a high-classed education is irremediable as regards the present generation, much may be done by ourselves, if we can only be made to feel the evil sufficiently strongly to excite us to do our utmost to eradicate it. "We waste our energies," it is well remarked by Mr. Skey, "in a fruitless struggle to raise ourselves in individual classes by a sort of internecine contention, instead of making one general effort to elevate our pursuit." And again, "It cannot be expected that society will aid us unless we aid ourselves, unless we root out all those evils that we alone can deal with; unless we purge ourselves of the imputations of littleness, and throw ourselves on the highest resources of our profession." It is thus that we may remove from among ourselves the second cause assigned by Mr. Skey for the depression of our professional status, "the degenerate standard of medical ethics." Without assenting to the propriety of the term "degenerate," which implies that there has been a fall from a previous elevation, we feel that he has but too much ground for the charges which he puts forth as to the present condition of the medical world. "Do I wrong our profession when I say that there is a want of tone, a jealousy of the exertions as well as of the success of others, a tendency to misconstrue good, or to suggest evil motives; the absence of that enlightened spirit that marks the gentleman of education." We have so frequently and expressly dwelt upon this topic, that we need not follow Mr. Skey through his remarks, which have reference chiefly to a comparison between the professions of law and medicine, as regards the observance of "a sense of decorum, of propriety, and of refinement," in the mode in which they are relatively practised, which comparison is made out to be to the advantage of the former. We should have much preferred to have found him dwelling, as we have ourselves heretofore done, (vol. ii, p. 19) upon the fundamental principle of Christian conduct, the law of divine wisdom and love—"Do unto others as ye would that men should do unto you"—as the foundation alike of medical ethics and medical etiquette. We certainly should not ourselves think of going to the lawyer for instruction or example in this matter. Though he refrains, for reasons best known to himself, from thus going to the root of the evil, Mr. Skey introduces, in a subsequent part of his oration, some remarks upon one of the modes in which a better spirit may be diffused among us, which has been hitherto far too little regarded; namely, the æsthetic culture of the mind. The development and training of the *taste* has been left, even by education of great enlightenment, to the natural bent of the individual, and to accidental combinations of circumstances; and in seeking to form a love of *truth* and of *goodness*, they have thought that all care for the love of *beauty* might be left to itself. But the perception of the influence of that love on the enjoyment of life and the guidance of the conduct, and the observation of the results of its deficiency or misdirection, are leading the public mind to a sense of its importance, as one of those fundamental tendencies which exert a prominent influence over the character; and we are glad that Mr. Skey has taken the present opportunity of urging this upon his professional brethren.

"I desire to see a better spirit infused into our vocation, a spirit that will tend to avert those evils of conduct between man and man, that savour of the mercantile transactions of barter, and that are founded on questions of mere profit and loss. As an antidote against this spirit, I would venture to suggest the endeavour to cultivate a *more refined taste* than now pervades the profession, the accomplishment of which would, I apprehend, be a less difficult task than many would suppose.

"By taste, I mean simply the power of appreciating beauty in any form, whether in nature or in art, and the cultivation of which forms, I conceive, an important and a valuable substitute for more profound pursuits, but to which it may be superadded, with still greater advantage to its possessor. Good taste and good feeling are found in daily companionship with each other, and without its development in some shape or other, a blank is left in the circle of man's most refined enjoyments, while even his intellectual frame-work is incomplete and mutilated. For men are differently gifted, both as regards their sensibility and their taste. One man delights in the simple beauty of a flower, and expatiates with earnestness on its form and colours, a source of beauty quite distinct from that of its organization; while another observes the same object with indifference.

"I do not presume to enter into any definition of the nature of the beautiful, its essence or its source; but I will venture to assert that its study forms one of the most elegant resources of our minds, by enlarging the number of our intellectual pleasures; and in no direction can the mind, preoccupied by the responsible and active duties of our profession, expand more pleasingly or more profitably for the happiness of its possessor, than in that which opens to its sense of admiration the beauty of nature and of art." (pp. 37-8.)

And after pointing out the several means of cultivating and gratifying the æsthetic sense, he remarks:

"If I appear to enlarge unnecessarily on the subject of taste, it is because I believe, by its more general cultivation, we may eradicate much of the human dross that pervades our profession; for taste is not more a matter of perception and feeling *than of conduct*, and forms a regulating principle of our lives. It associates itself with our every action, as well as with the motive that animates them." (p. 41.

Mr. Skey then goes on to remark upon the important influence exerted by the state of the law, in depressing the rank of the profession of medicine. "It is general practice," he says, "that gives the stamp to the whole; and it is to this department that my remarks are intended specifically to apply." He then goes on to assert that "the general practitioner is an amphibious link between a profession and a trade;"—an expression which we deem, to say the least, ill-judged and inappropriate, as throwing a slur upon a large and influential body, of whose very existence Mr. Skey appears to be ignorant. His notions of "general practice" seem to be founded upon the system as carried on by a large number of medical men in London and its vicinity; some of whom keep open shop, not merely dispensing medicines to their own patients, but selling them over the counter, and making up physicians' prescriptions; whilst others, who keep a private dispensary, are content with sending medicines to their own patients, but, like the preceding, depend for their professional remuneration upon the charges which they make for them. Now of the injurious effects of this system, not merely upon those whom it more immediately affects, but upon the character of the profession at large, it is impossible to speak too strongly; and we quite accord with Mr. Skey's observations upon it.

"The objection to this system cannot be overcharged. It is inseparably interwoven with the rank of our profession, with the respectability of our characters, and with the well-being of every station of society. It upholds the most pernicious doctrine, that medicine is the sole, or at least the primary, antidote against disease.

It invites empiricism; it engenders erroneous principles of pathology; and it weakens the allegiance of our profession to Nature, as the great author of disease, and the beneficent worker of its treatment. The true principles of the art of healing, consist in the endeavour to develope and awaken the influence of Nature, in the cure of disease. By the adoption of the present system, we forget the operation of first causes, in our false reliance on second; we largely circumscribe our curative powers, and we strike a fatal blow at the just rank and respectability of our profession.

"If there exist one feature more injurious than another to the rank of the general practitioner of England, and the persistence in which presents a more fatal obstacle to the success of any attempt to ameliorate his condition, it is that which places a pecuniary value on the drugs he dispenses." (p. 31.)

But this method of obtaining professional remuneration is altogether discountenanced by the higher class of general practitioners, both in London and the Provinces, but more especially in the latter; those of them who dispense their own medicines, charging merely their cost to themselves; and many of them being in the habit of sending their prescriptions to be dispensed by a druggist; in both instances the charge being made for visits, instead of for draughts and pills. If it be said that such are not "general practitioners," we ask what they are. They are not "pure" surgeons, for they practice medicine and midwifery; they are not physicians, for they have no diploma, and they practise surgery; they are not apothecaries, for they practise surgery and frequently decline pharmacy altogether. Thus they cannot be ranked in any other grade than that of general practitioner; yet to this caste belong by far the greater part of our provincial hospital surgeons; and the leading practitioners in medicine in our great provincial towns are as often members of this "amphibious" grade, as they are University graduates, or members of the College of Physicians. We could name many, were it not invidious, who at present occupy this rank, not merely in the estimation of the public, but in that of their professional brethren; but with such an example before us as that of Mr. Pennington, it is unnecessary to say more. We might take the present opportunity of entering upon the questions now under discussion between the Council of the College of Surgeons and the General Practitioners of England; but this our limited space forbids; and we have only to remark that in its dealings with this class, the council appears to be governed by a notion founded upon the state of "general practice" in the metropolis, which (we do not hesitate to affirm) is not a fair representative of its condition in the provinces, where a "pure" surgeon is a *rara avis.*

The last of the remedies urged by Mr. Skey, the institution of an "order of merit," we think of very doubtful benefit. The best recognition of our services that the State can grant, is, in our opinion, the admission of the claims of our profession to share in the honours and emoluments of the public service, which are at present so unfairly withheld from it; and more especially, the placing the control of all matters affecting the Public Health, under a Board, of which the greater part should be composed of Medical men, specially qualified for the appointment (like the Commissioners of Lunacy) by their previous attention to the subject.

In bringing to a close this notice of Mr. Skey's Oration, we may remark that whilst we have felt called upon to comment upon certain passages contained in it, as neither true in themselves, nor judicious even if true, we regard it on the whole as a performance very creditable to the author, and calulated to be very beneficial both to his hearers and readers. We have not thought it worthwhile to stop to point out sundry inaccuracies and inelegancies of style which we have noticed while perusing it; but there is one so extraordinary, that we cannot help calling Mr. Skey's attention to it. The last paragraph of the Preface stands thus: "In the latter pages, the reader may recognise, in more than one passage quoted under his name, the sentiments and probably even the language of that elegant writer." What " elegant writer is meant? None is named in the preceding paragraph; and on turning to the " latter pages ' for elucidation, we find quotations from Lord Byron, Dugald Stewart, Burke, and Cicero, all of whom may rank in Mr. Skey's catalogue of elegant writers. Moreover, we presume that Mr. Skey meant to say, that the reader may recognise in more than *the* passage quoted under his name,—that is, in passages which are *not* quoted under his name,—the sentiments, if not the language of the elegant author (whoever he may be) once quoted. *Non cuivis contigit adire Corinthum;* it is not every one who enjoys the power of putting his thoughts into intelligible English.

ART. XVI.

Evening Thoughts. By a Physician.—*London,* 1850. Post 8vo, pp. 144.

THIS unpretending little volume consists of short Essays on various topics, belonging chiefly to the domain of Ethics and Religion, and characterised throughout by clearness and freedom of thought by elegance of expression, and by that truly reverential tone of feeling, the manifestation of which is far better than formal profession. We shall best convey an idea of its character, by extracting a few passages; we shall take, as our first sample the following, from the "Thought" with which the volume opens, entitled "The Whole Mind." The author is contending for the doctrine that the mind is not constructed by the senses, but that it has certain native powers, which their operation calls into activity; and he brings his theory to the only valid test, that of man's own consciousness:

> " Take the sense of sight. It may be true to the experience of one self-observer that his mind has become a gallery of beautiful pictures. Nature may have provided her share from her lime avenues, her old thorns with their young May blossoms, her green meadows, and clear running streams, from her snowy cataracts, and stormy white-crested waves, or her calm deeo-blue ocean depths. Art may have added her creations, and by the side of God's living pictures may be ranged the works of inspired men, so that the accomplished mind becomes ' a mansion for all lovely forms.' Such a mind may be able to recall the moment when first it felt that one of these impressions from without was beautiful. The self-observer may remember, when looking at a wood clothed in its rich and luxurious, and as yet unfaded, summer leaves, and bathed in that summer's liquid yellow light, that he suddenly experienced an intense and vivid *feeling* of its beauty, such as he never had before, and which has never left him altogether since :—like the awakening of a dormant power within him, of an inner sense of the beautiful, by which he has been enabled to appreciate beauty as he could not do previously, which sense all beautiful objects have fed and strengthened. Such experience is *to him* conclusive

that there is, besides the passive reception of beautiful impressions, an active power which feels the beautiful in them.

> "This sense of the beautiful or idea of the beautiful, existing as a dormant power of the mind, and suddenly awakened by an impression of the sense, and nourished by a repetition of the impressions, enables one who has thus experienced it, to understand the meaning of those who contend that ideas are innate. He has the conviction, from personal experience, that such impressions on the nerve of sight is one fact, the feeling of their beauty another, and that this later awakened sense is a new source of pleasure, as a new sense would be. He will be unable to convey his conviction to another who has not gone through the same experience; but that other may be convinced of the principle by experiences to which *he* is a stranger." pp. 2-4.

The same view recurs through the book; and we believe that in these days of extremes,—of an ultra-sensual philosophy, which regards that knowledge only as "positive" which comes through the senses,—and of an ultra-spiritual philosophy, which looks at the "pure reason," or "intuition" as the source of all knowledge, and regards the impressions of the external world derived through the senses as little better than "shams,"—it is of great importance to acquire a clear apprehension of this intermediate view, which to the physiologist is simple enough, and which appears to us to give the only satisfactory account of mental phenomena.

We shall now extract a passage, from amongst the many that tempt our choice, which will show our author's method of dealing with ethical subjects. The truth of the following will doubtless be at once recognised by our readers; yet we do not remember to have seen the remark formally made.

> "There is a *selfishness of the heart*, as well as a selfishness of the head. In selfishness of the understanding all the individual's acts are dictated by his own supposed worldly interests But there is also a selfishness of the affections, to which persons of warmer temperaments, of finer susceptibility, of deeper feelings, and of more imagination, are prone. Such often sacrifice unhesitatingly all their worldly interests, everything and everybody, for the gratification of their affections; but, in so doing, they as unhesitatingly sacrifice the best interest of others, and their own duties. and this it is that marks the affection as diabolic, not as divine. It is a sacrifice for self-gratification only; it is no self-denial: self is uppermost: and such selfishness is often the fault of beautiful, tender, and imaginative women, it puts on so becoming a disguise, as almost to pass for a virtue. It is a vice of the best part of human nature, and partakes somewhat of the beauty which it mars; and on this account is more dangerous than the more openly odious variety, as the highest truths, when distorted, are the occasion of the deepest and most destructive errors." pp. 57-8.

The following admirably expresses the great fundamental truth of Religion; and might be made the text for a long disquisition. That *mind* is the source of all *power*—that the Supreme Mind is the direct and immediate agent in all the phenomena of the universe, save the mental operations of the beings which have been endowed with freedom of will, and that every statement of "laws" and "causes" is little else than a philosophical fiction, the only real meaning of which to express *our* idea of the plan or method according to which the Supreme mind operates in Nature,—are doctrines towards which, as it seems to us, all true philosophy, physical and psychological, is now tending.

> "I am standing on the earth, the earth rests on nothing, but revolves in its elliptical orbit through infinite space, with a velocity, the law of which has been calculated by Newton, but by a force, of the nature of which Newton confessed that he was wholly ignorant. All that is known of natural forces is that one can be traced into another, that no physical force is newly-created, only changed; and we must at last come to the First Mover, the actual producer of force. Modern science confirms Aristotle, when he said, "All that is in motion refers us to a Mover; and it were but an endless adjournment of causes, were there not a primary immoveable Mover.' Thus science leads to the knowledge of a Being exerting his originating Power,—his Will,—and, standing on this earth, I am dependent on this Power as my only security against destruction. This Power is the *ground*, the real foundation of the physical stability of the earth, and consequently of my own existence. Science gives no countenance to the philosophical hypothesis, that God has made a world with certain laws, and stands apart merely watching its progress. She can only conceive the Creator, as keeping up the various forces of nature, by a constant exercise of his self-originating power. The text that not a sparrow falls to the ground without the power of God, is in literal accordance with the teachings of modern physical science. Science and Christianity agree, when the latter teaches that God is not a mere Thought, or Intelligence, but a Person, on whose voluntary power we rest as literally as a babe in its mother's arms." pp. 92-3.

Similar views are presented elsewhere, especially in the closing essay, on "The Spiritual Tendencies of Modern Physical Science."

Of the "Thoughts," in the latter part of the volume, many are more directly religious in their subject and tone; but the author's views, large and catholic in their scope, are nowhere offensively brought into prominence; and his object throughout is to show that true religion is the completion and realization of the highest philosophy. This is admirably set forth in the short essay entitled "Philosophy and Christianity," from which we must content ourselves with quoting a few sentences that will serve to convey our author's idea.

> "Does not philosophy differ from Christianity, as art differs from nature? Philosophy is man's representation of the Divine idea in his own mind, and therefore more or less distorted by the individual's imperfections. It is a mere representation . . . . . It pictures a mind trained to be a temple of the Divine idea; its rules are the representation of the steps to that temple. But there is no life in the picture: no power to produce the effects portrayed. . . . . But Christianity, like nature, is to the eye a picture, whilst, in reality, it is instinct with life. It combines both. With philosophy, it proclaims that man is nothing unless he realizes the Divine idea, unless his mind is a mansion for all lovely things, unless he becomes the temple of the Holy Spirit. This is the picture. But it gives also the power of effecting this change. It is to the man struggling to be a man indeed, what chemical action, gravitation, life, is to brute matter,—an energy, or power, or force, vivifying both. It is the only power which can make a philosopher, which will raise a man above sense, and give him that serenity which alone belongs to the kingdom of the Ideal, to the Unseen. Philosophy is the statue; Christianity is the man: Philosophy is the cold marble Laocoon struggling with the serpents; Christianity is the man himself, struggling with the outward world." pp. 54-6.

In the "Thoughts" on "Spiritual Sense-Organs," "Analogous between Natural and Spiritual Generation," and "Analogies between the Vital Principle and Spiritual Life," the author has made good use of physiological principles, to enforce, by analogical argument, spiritual truths of the highest import; the last of these, being brief, we may quote in full.

"Both require external influences. Life exists in the egg, but unless continuous and equable heat is applied with air, the life remains dormant. Life exists in the seed brought from the pyramids of the Pharaohs, but it does not germinate, unless exposed to the influence of air, light, and moisture; and a continued supply of the same outward stimulants are necessary, both to the continuance of life, and to the development of the living being. All living beings require air, warmth, light, moisture, food. These are not the life, but they are necessary to its activity. And it is so with our spiritual life. God implants it, but outward means are necessary for its growth. Sacraments, the ordinances of the church, family and secret prayer, self-denial, alms-giving, mortification of our sins and senses, a constant watch over our thoughts and feelings, the study of the Bible, are necessary to our spiritual life; they are as the air, and warmth, and light, and food, to our common life. It is not enough that we may understand certain doctrines, and assent to their truth; this is an affair of the intellect: it is not enough that we feel certain affections; this is an affair often of mere sensation; both may be as food to our spiritual life, but they are not that life itself, that life of God in the soul of man, which it is the object of Christianity to cherish and to perfect, so as to make us again in God's image." pp. 135-6.

From the selections which we have made, our readers will be able to from their own judgment of the merits of this little volume; but we would remark that we have been governed in our extracts by a desire rather to show the mode in which different subjects are handled by the author, than to present the choicest passages for our readers' gratification. Small and unpretending though it is, we regard this little volume as one that does credit not merely to the author, but to the profession to which he belongs; and we would strongly urge its perusal upon our readers, as calculated to benefit them, not merely intellectually, but morally, and religiously. We do not know any book which is better calculated to be of service to that increasing class of thoughtful men, who are led by their dislike of the bigotry and dogmatism of too many professors of religious systems, to shrink from religious profession altogether. It sets before such, that in the *religious life* they will find the realization of the noblest tendencies of their spiritual nature, of the teachings of the profoundest philosophy, and of the essential truths of revelation; and that they will thus secure to themselves the highest enjoyment of all that is really worthy of contributing to man's happiness in the present life, and will prepare themselves for the purer and more elevated pleasures of the life to come.

We trust that a new edition will be called for ere long, and that the author will give us the pleasure of becoming acquainted with some more of his "Evening Thoughts."

Bibliographical Notices.

ART. 1.—*A Manual of the British Marine Algæ: containing Generic and Specific Descriptions of all the known British Species of Sea-Weeds. With Plates, to illustrate all the Genera.* By WILLIAM HENRY HARVEY, M.D., M.R.I.A., Keeper of the Herbarium of the University of Dublin, and Professor of Botany to the Royal Dublin Society.—*London*, 1849. 8vo, pp. 304.

THIS work is to be regarded as a new edition of that portion of the author's 'Manual of the British Algæ,' published eight years since, which includes the marine species; the fresh-water Algæ having been omitted, for very sufficient reasons. During the interval which has thus elapsed, much has been done, both in this country and on the continent of Europe, to further our acquaintance with the group in question. Many new species have been discovered; but this is an advance of far less value than that which has been made towards determining the structure and physiology of this tribe of plants. From both circumstances, many improvements in classification have already resulted; and many more may be confidently expected, when, with the light already gained, the organs now least understood shall have been subjected afresh to a discriminating scrutiny. This will be sufficiently obvious, when we advert to the fact, that the idea of the *sexuality* of the Algæ is only now making its way among Algologists; and that the interpretation which it has afforded of the two kinds of fructification which present themselves among the *Fuci*, has yet to be applied to other families. Moreover, it seems now well-ascertained, that certain kinds of reproductive particles, spontaneously detached from the parent, and capable of originating new beings, are not to be regarded as the product of the true generative act, but as gemmæ or buds; and the conceptacles in which they are often evolved, therefore, cannot be admitted to constitute a part of the true "fructification." The distinctions founded upon this view have yet to be worked out through a large proportion of the class; so that it is evident that the classification, at least of the principal groups, is at present in a transition-state. We find, however, that (as might be expected from the large share which its author has himself taken in the advancement of Algology) the work contains the results of the latest researches on these subjects, and is in all respects a true representative of the present aspect of the science. The most important improvement in this new edition consists in the introduction of plates to illustrate the genera, which, though minuteness is not aimed at, will doubtless enable the student, with the help of the descriptions, to ascertain the genus to which his specimens may belong. The volume is, in every respect, worthy of Mr. Van Voorst's series of illustrated works on British Natural History; and we could not say more in its praise.

ART. II.—*Annual Report of the Progress of Chemistry, and the Allied Sciences, Physics, Mineralogy, and Geology.* By JUSTUS LIEBIG, M.D., and H. KOPP. Edited by A. W. HOFFMANN, PH.D., and W. DE LA RUE. Parts I-III.—*London*, 1849. 8vo, pp. 580.

OUR readers will, perhaps, be enabled to form an opinion concerning the design and scope of these Reports, if we place before them a few paragraphs from the prospectus.

> "It is evident that a rapid acquirement of an accurate knowledge of the progress made by so extensive a science as chemistry, and a clear perception of the connection of the individual researches as to their confirmation, correction, or refutation of each other, would be most materially facilitated by an annual report, founded on the broadest possible scientific basis, and carried out by men equal to the task.
>
> "Professor Liebig, in conjunction with several distinguished scientific men, has undertaken the regular publication of such an account. By the united activity of a number of persons working on a well-connected plan, it will be possible to obtain a detailed account of the researches published during each succeeding year, soon after its expiration. The Report of the Progress of Chemistry and the Allied Sciences will always be in the hands of the scientific public before the middle of the following year.
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> "The Annual Report aims at completeness, principally in the communication of *results;* descriptions, however, of *methods* by means of which these results may have been obtained, will be by no means omitted whenever it may appear conducive to the comprehension of the subject, or whenever the methods themselves are new.
>
> "One of the principal objects will be to treat synoptically of the different researches published on the same subject, and to expose, in a lucid manner, the relation existing between recent inquiries and our actual store of knowledge.
>
> "This series of Reports will commence with two volumes extending over the years 1847 and 1848, which will be published in the course of 1849; each future Report will be limited to one year."

The three parts now before us make the first volume of these reports. They are devoted to the subject of physics, inorganic chemistry, and the chemistry of vegetable substances. Part iv, which will make the second volume, is to be devoted chiefly to animal and analytical chemistry.

English chemists, who are too often much behind their neighbours, have long felt the want of a work like the present, in which they might, at a single glance, contemplate the progress of their favorite science; for if we except about four periodicals, viz. the 'Chemical Gazette,' the 'Chemist,' the 'Philosophical Magazine,' and 'Taylor's scientific Memoirs,' they have not had the means of becoming acquainted, except in a casual way, with the labours of their continental brethren. And even with regard to the publications in question, their editorial resources were too limited, and their intentions of too special a nature, to be of much value to the general reader.

We cannot, therefore, but hail the appearance of these reports with pleasure, and the more so because they have come at a time when a wants of even continental students were likely to be severely felt in consequence of the death of Berzelius, upon whom they had relied, not only as the great cultivator of the science, but as the principal recorder of its facts. Fortunately, the spirit of his annual productions is revived in the reports before us; and we hardly need say that the labours of Liebig and his colleagues will be highly appreciated by every chemist and physicist both in Germany and the United Kingdom.

That these Reports, however, may be of the utmost value to the British chemist, we trust that the German editors will be faithful in the performance of their self-imposed duties; and that they will not permit any personal feeling or professional bias to interfere with the due record and complete exposition of the labours and views of such men as Gerhardt, Laurent, Dumas, Mülder, &c. We do hope, moreover, that the English editors will take pains to improve on their present style of writing,—that they will avoid all Germanisms,—and will especially remember that as they are addressing English chemists, they are bound to employ those terms, weights, measures, and thermometric degrees with which the latter are most familiar.

As an example of the style in which the English editors are accustomed to express themselves, we may quote the following passages.

> "Liebig opposes the view, which considers putrefaction and fermentation as the result of vital processes, f. i., of the development of vegetable formations, or of microscopic animals: he adduces, that no traces of vegetable formations are perceptible in milk which is left for some time in vessels carefully tied over with blotting-paper, not even after fermentation has regularly set in, a large quantity of lactic acid having been formed. He further remarks, that of fermentative processes, alcoholic fermentation having been studied too exclusively, the phenomena observed therein had been generalized, while the explanation of this process ought to be derived rather from the study of fermentative phenomena of a more general character." (p. 357.)

ART. III.—1. *Pathology of the Human Eye.* By JOHN DALRYMPLE, F.R.C.S. Fascic. IV.—4to. Four Plates.

2. *Surgical Anatomy.* By JOSEPH MACLISE, Surgeon. Fascic. V.—Folio. Five Plates.

IN "reporting progress" of these admirable works, we can say little else in commendation of them, than that they fully maintain their previously high standard of excellence, to surpass which would be difficult. Of the present part of Mr. Dalrymple's "Pathology of the Human Eye," however, we would say that it is altogether, in our apprehension, the best that has appeared; the figures being, with scarcely an exception, not only faithful and life-like portraits of the diseases they represent, but also beautiful as works of art. The First Plate gives us six examples of the more simple and common forms of inflammatory affections of the conjunctival membrane, of which purulent ophthalmia is the exaggerated type. First we have *simple* and limited conjunctivitis; then the *phyctenular* (commonly but erroneously termed pustular) conjunctivitis, so common in young subjects, especially among those of a strumous diathesis; and then the true *pustular* ophthalmia. From the pustules on the cornea, which so frequently constitute the first stage of the ulcerative process, we naturally go on to ulcers of the cornea, which forms the subject of the first three figures in the second plate. The first of these figures is probably the least successful of the whole set; but, as Mr. Dalrymple justly remarks, "it is very difficult to convey by drawing correct representations of transparent parts, especially the cornea." We suppose that it is partly on this account, that he has attempted to give but a very small number of illustrations of the various forms of ulceration of the cornea.

The other three figures in this plate are devoted to *inflammation of the cornea;* and this subject is continued in the third plate, the first figure of which is a most admirable representation of purulent deposit between the laminæ of the cornea, with that intense superficial vascularity which has received the name of *pannus*. We quite agree with Mr. Dalrymple as to the propriety of discarding the ill-understood term *onyx*, and of dividing suppuration of the cornea into circumscribed and diffuse abscess of this tissue.

> "Thus," as he justly remarks, "we have the pustule of the cornea, or deposit of pus under the conjunctival covering of this membrane; a circumscribed abscess affecting limited portions of the deeper laminæ; and diffused abscess, where the purulent fluid infiltrates the general interposed areolar tissue of the corneal laminæ."

The second figure represents that curious disease, known as *vesicular corneitis,* which was first described by the late Mr. Tyrrel. The remaining figures illustrate various forms of sclerotitis; and among them is one of a rare and perhaps unique case, that occurred in the practice of the late Mr. Scott, in which gouty concretions were formed beneath the conjunctiva, being apparently deposited in the sclerotic coat as they are elsewhere in the fibrous tissues around joints.—The figures of the fourth plate represent the sequelæ of inflammation of the cornea, ulcers, and the like, whereby vision is more or less obscured, or even obliterated. Here we find the vascular and hazy opacity of chronic corneitis lingering in a subject of cachectic constitution; the nebulous opacity of the outer circumference of the cornea, deepening into a dense leucomatous spot at the centre, where an ulcer penetrating to some depth had previously existed; true leucoma, resulting from opaque deposit between the deep laminæ of the cornea; an opacity of considerable size, but so placed as to leave the pupil free; the cicatrix of a penetrating ulcer of the cornea; and leucoma with adhesion of the iris to the cicatrix of the cornea; all admirably delineated, and described in the accompanying Commentary.

The whole of the present part of Mr. Maclise's work, is devoted to the Surgical Anatomy of Hernia; this subject having been commenced in the preceding. The success with which he has treated it fully confirms our opinion that he has done wisely to consider the "parts of hernia" as forming one region, rather than divide it into two; since the relations of the several structures concerned are much better comprehended when thus examined in their connexion, than they can be when viewed in isolation from each other. Of course, after the whole has been thus surveyed, each region should be separately studied in its particular relations to the operations to be peformed upon the parts it contains. The first plate gives, in two large figures, "the surgical dissection of the first, second, third, and fourth layers of the inguinal region, in connexion with those of the thigh;" and the second also contains two large figures, giving "the surgical dissection of the fifth, sixth, seventh, and eighth layers of the inguinal region, and their connexion with those of the thigh." In his description of the inguinal canal, Mr. Maclise has taken what we feel assured is the right method; that of regarding this canal as formed of elongations of the several layers covering the groin, invaginated one within the other, the outermost layer being the integument of the groin elongated into the scrotal skin, whilst the innermost consists of the transversalis fascia elongated into the internal spermatic fascia, or sheath. "With the idea of an inguinal canal thus naturally constituted," he continues, "I need not hesitate to assert that the form, the extent, and the boundaries of the inguinal canal, as given by the descriptive anatomist, are purely conventional, and do not exist until after dissection." The third plate gives, in three figures, "the dissection of the oblique or external, and the direct or internal inguinal herniæ." And the fourth contains four figures designed to illustrate "the distinctive diagnosis between external and internal inguinal herniæ, the taxis, the seat of stricture, and the operation." All these figures are admirably drawn; and the accompanying commentary is most judiciously and plainly written. We congratulate Mr. Maclise, not merely on the great success of his work, but also on the improvement in his mode of expressing himself; to which we venture to think that our own remarks upon his earlier numbers may have in some degree contributed.

ART. IV.—*The Poor Artist; or Seven Eye-sights and One Object.*—*London*, 1850. Fcap. 8vo, pp. 234.

THIS little book is a sort of *jeu d'esprit*, intended to convey, under the guise of fable, a high scientific truth,—familiar to physiologists and psychologists, ever since Berkeley unfolded his admirable 'Theory of Vision,' familiar, also, to the artist who looks beyond the mere imitation of Nature,—but far too little regarded by the world at large; namely, that the conception of an external object will vary, on the one hand, with differences in the optical instrument by which the picture is formed, and on the other, with differences in the attributes of the mind, whose perceptive power is exercised in turning into consciousness (so to speak) the picture formed by the visual organ. Consequently, has the "poor artist," grown rich in the last chapter, expresses it,—the eyes of different species being constructed upon very different plans, so as to represent and interpret the object according to their peculiar powers,—"there are as many different external worlds as there are different species of eyes." This statement is phrased in such a manner as to be open to grave exception; since it asserts the *actual existence* of a multiplication of external worlds which it is tremendous to think of. The author must of course mean, that there are as many conceptions, or subjective representations, of the same external or objective reality, as there are different kinds of eyes. To illustrate this, indeed, is the whole object of the story, as conveyed in the title.

The "poor artist," after the fashion of La Fontaine, falls in with a set of animals that have the power of rendering themselves intelligible to him; each of whom gives him a commission to paint a picture of a wonderful object, seen that morning for the first time, according to a description given. The conversation with these animals,—a bee, an ant, a spider, a fish, a cat, and a robin,—are admirably sustained; the author is evidently an acute observer of nature, possessed of some scientific knowledge of natural history, which is turned to excellent account, and having imagination enough to invent speeches for the various interlocutors, which have an air of great *vraisemblance*, and are sometimes humorous enough,—as when, in allusion to the well-known destructive propensity of the female spider, he makes the Ant reply to a polite invitation from the Spider to come and sit upon the corner of her web, "'Thank you, *who* killed her seventh husband yesterday morning?' 'Don't be spiteful,' interposed the Bee; 'perhaps there was a reason for it.' 'So there is for everything,' said the Ant; 'but that does not alter a black fact.'" The grave and contemptuous indifference of the Cat, wherever she is brought in, is most admirably portrayed; a lady-friend of ours, who has particularly studied the species, assures us that nothing could be more felicitous. After painting, or endeavouring to paint, all the pictures for which he has received commissions, the artist agrees with his several patrons that they shall conduct him to the object which they have described to him; and it turns out that they have all seen the same thing, which is neither more nor less than a golden sovereign. This windfall comes very seasonably to the relief of the "poor artist's" distress; and his adventure is made to lay the foundation of his subsequent prosperity.

But it is not by differences of *eyes* alone, that the conceptions formed of external objects will be made to vary; for "with each individual species, 'the thing *behind* the eye' (as a celebrated Eastern philosopher expressed it), or the mind, causes each individual of that species really to see the self-same object differently, and sometimes with a very extraordinary difference; or perhaps not to see it at all, though it lies palpable to view." This part of his doctrine, which is more capable of actual demonstration than the preceding, is illustrated by the various interpretations put by a number of (human) spectators, upon a picture which the "poor artist" has composed, to "embody the most practical part of his recent novel experiences, and bring them to bear on the general understanding, in a far more definite form than could be reasonably expected from any of the pictures derived from the descriptions of his friends in the wood." Here, as in the preceding chapters, the author shows a great power of putting himself into the attitude of other minds, and of giving appropriate utterance to their thoughts; and he carries along his readers with him to the conclusion, "that there is almost as much difference in the eyesight of these six people in looking at the same object, as there was between the spider, the bee, the cat, the ant, the robin, and the fish."

We have said enough, we trust, to show that our readers may obtain a pleasant and healthful refreshment from severer studies, in the pages of this little volume.

Art. V.—*Sanitary Economics; or, Our Medical Charities as they are, and as they ought to be.* By Alexander P. Stewart, m.d., Physician to the St. Pancras Royal General Dispensary.—*London*, 1849. 8vo, pp. 30.

The profession scarcely needs to be informed that there is much that is unwholesome in the present system of our medical charities,—that they are continually and grievously perverted from their legitimate purposes,—and that they inflict considerable injury upon those practitioners, whose employment lies chiefly among the lower division of the middle classes and the superior class of artizans; such persons being frequently, indeed almost generally, in the habit of seeking for medical relief from hospitals and dispensaries, instead of from an attendant who looks for remuneration from them. These evils are well exposed by Dr. Stewart in the pamphlet before us; and he further dwells on another pernicious result which the spread of the dispensary system involves,—namely, the aid which it gives to other systematic charities, in *breaking down*, instead of *drawing out*, the self-supporting energies of the industrious classes. We have been led, at different times, to think much of this subject; and while we feel that, as society is at present constituted, poor's-rates and hospitals, together with the administration of public and private charity, are necessary evils, the truest charity is that which lends its aid to *provident* institutions of various kinds,—such as enable the industrious classes to secure for themselves the means of support in times of distress, with medical attendance in sickness, and provision for families otherwise left destitute by the death of those on whom their maintenance chiefly depends. There can be no question that if no more than half the sum now annually spent by the working classes in intoxicating liquors were thus invested, it would be amply sufficient for every such purpose; and how much better such a disposal of it would be for their personal welfare and moral character, we need scarcely point out.

We heartily accord, therefore, with Dr. Stewart, in his appeal to his medical brethren, to do all in their power to reform the present dispensary system; by introducing the principle of a small weekly payment, to be contributed by all who desire to secure to themselves medical advice when needed, save such as are really debarred from it by their extreme poverty. We may perhaps take some future opportunity of recurring to this subject.

Art. VI.—*Surgical Anatomy of the Arteries, and Descriptive Anatomy of the Heart.* By the late Valentine Flood, m.d. Second Edition, by John Hatch Power, m.d.—*Dublin*, 1850. Fcap. 8vo, pp. 190.

The high reputation attained by the original of this treatise fully justified its republication; and, on the whole, we think that Dr. Power has discharged his editorial duties very successfully, having made several important additions, which are calculated to be of much service to the student. The first of these, however, on the 'Anatomy of the Heart,' strikes us as being rather superfluous; since that subject is fully considered in most treatises of good repute on descriptive anatomy, and the value of more minute details is rather medical and physiological that surgical. A full notice is given of the treatment of aneurism by compression, and from the terms in which this method is spoken of by Dr. Power, we infer that it holds its ground more firmly in Dublin than it has done elsewhere. "The treatment of aneurism," he says (p. 173), "by compression upon the artery leading to the tumour, may be considered as one of the greatest achievements in modern surgery. In this city, it has almost entirely superseded the operation of tying the femoral artery for the cure of popliteal aneurism. It accomplishes without danger what Hunter's operation effected with the risk of human life." We notice that some of the statements as to the numbers and results of certain operations have not been corrected down to the present time; and this omission, with the very inferior character of the woodcuts, are the chief faults we have to lay against the book, which are far surpassed by its excellencies.

Art. VII.—*Annals of Anatomy and Physiology*. Conducted by John Goodsir, F.R.SS. L. and E., F.R.C.S.ED., Professor of Anatomy in the University of Edinburgh. No. 1, Feb. 1850.—Royal 8vo, pp. 96. Four Plates.

This new periodical has strong claims upon the attention of all who are interested in the progress of the sciences to which it is devoted. It is especially designed to—

> "Afford to British anatomists and physiologists a medium of publication for such researches and observations, as, not appearing in the form of separate works, or in the transactions of societies, find their way into medical and general scientific periodicals, and are thus occasionally difficult of access, liable to be overlooked, and apt to lose, in some measure, that influence in the advancement of science, which a more appropriate position might secure. Indeed, it cannot be doubted, that in consequence of the want of a medium of this kind, many valuable anatomical and physiological observations made in this country only become generally known indirectly, and, therefore, slowly and imperfectly, to those principally interested in them."

It is intended that the range of the original articles shall include morbid anatomy and pathology in their relations to the general science of organization; although special applications of anatomical and pathological science to the arts of medicine and surgery will, like the corresponding applications to classificatory and descriptive zoology and botany, be left to the numerous periodicals which already embrace these departments.

In thus choosing his ground, Professor Goodsir has shown, we think, a wise discretion in everything save the commercial interest of his journal. We are sadly afraid that neither the naturalists who think the collection and arrangement of species the great end and aim of natural history, and the practitioners of medicine and surgery who estimate every advance in the science of organization by its direct utilitarian value, will feel sufficient interest in this periodical to think it deserving of their support; but this furnishes an additional reason why every naturalist who has higher aims, and every medical man who has a more disinterested love of his profession, should exert himself to sustain it. We are sure that Professor Goodsir looks for no remuneration for his own time and labour in conducting it; and we believe that, with a generosity which cannot be too highly praised, he would even carry it on at a loss. But this makes it the more incumbent upon those who have the benefit of it, to do what in them lies to prevent such a contingency; and we trust that our appeal will *not* be in vain.

Besides original papers, it is intended that each number shall contain—

> "A quarterly list of the titles of British and foreign works on subjects in anatomy and physiology, and of the memoirs and papers on such subjects contained in the British and foreign transactions and journals. This department, it is believed, will be found specially useful to every one engaged in systematic study or research. It will present one of the most important features of a report; at once indicating the existence and locality of information, and facilitating the consultation of original authorities."

This will constitute a very useful feature in the Annals; and its value would, we think, be much augmented by the introduction of brief abstracts of the more valuable papers which occur in journals least accessible in this country. We observe that the valuable 'Zeitschrift' of Professors Siebold and Kölliker is not included in the list.

The part before us contains the following papers: I. On the Muscular Structure of the Tongue of Man and certain of the Mammalia; by Mr. John Zaglas. II. On the Anatomy of Forbesia, a very curious zoophyte, which appears to connect the hydroid and helianthoid polypes; by Mr. Harry D. S. Goodsir. III. An account of some Monstrosities; by the late Dr. John Reid. IV. On the Structure of the Glands of the Alimentary Canal; by Professor Allen Thomson. V. Note respecting the Dimensions and Refracting Power of the Eye; by Professor J. D. Forbes. VI. On the Structure of the Spleen; by William R. Sanders, M. D. (Part I.) Each of these papers is of considerable interest; and we have no doubt that the editor will be able to secure at least as attractive a selection for his future numbers. The plates are not quite of the merit we had been led to expect by that of the illustrations of Professor Goodsir's former productions. The last two are distinct and expressive; but the first and second are more 'smudgy' than is desirable. It is to be remembered, however, that the price of the journal is set so low that a high finish in the drawings cannot be reasonably looked for; and it must be sufficient if they are merely intelligible.

ART. VIII.—*Medical Portrait Gallery.*

UNDER this title, Mr. T. M. Stone, of the College of Surgeons, is at present issuing a series of portraits of eminent members of the profession, drawn in litography by Mr. Maguire, whose eminence in that art is well known, and printed in the first style on India paper. The series at present contains Drs. Todd and Budd, and Messrs. Fergusson and Edward Forbes, of King's College; Messrs. Skey and Paget, of Bartholomew's; Messrs. Avery and Hancock, of the Charing-Cross Hospital; Mr. John F. South, of St. Thomas's; Dr. Forbes and Mr. Ranald Martin. All these are admirable as works of art, and the likenesses are for the most part very successful. Those of Dr. Todd, Dr. George Budd, Mr. Paget, Mr. Fergusson, and Mr. Ranald Martin, are excellent; and of most of the remainder we can honestly speak in terms of commendation. That which pleases us least is the portrait of Prof. Edward Forbes, which is far from agreeable in point of expression, and which scarcely does justice to his features; whilst that of Dr. Forbes, although so like in feature that every one who knows him must at once recognise, it would give an idea of his character by no means accordant with the reality. It is not to be expected that any single artist, however "many-sided," should do equal justice to a great variety of physiognomies, expressive of as many different minds; and perhaps the wonder is, that Mr. Maguire has on the whole succeeded so well. The rate at which these portraits are published is so low, that nothing but an extensive sale can remunerate the spirited projector; and we trust that he will receive from the profession an amount of support that shall encourage him to add many portraits to his "Gallery." The interest which a complete collection of our present "notabilities" would possess, both for their contemporaries and for future generations, need scarcely be pointed out.

Art. IX.—*Rational Medicine: a Vindication. The Address delivered on the Opening of the New School of Medicine, Surgeons' Hall, Edinburgh, November* 6, 1849. *With an appendix.* By Alexander Wood, m. d., Fellow and Member of the Council of the Royal College of Physicians, &c.—*Edinburgh*, 1849. 8vo, pp. 88.

This publication came to hand too late to be noticed in our first article. Dr. Wood is already well known as the author of 'Homœopathy Unmasked,' and it is not surprising that he should seize the opportunity which an inaugural address, to be delivered to students and teachers of medicine, affords to defend the art and science from their detractors, and "in this age of mingled scepticism and credulity" to indicate "those guides which alone can safely conduct through the mists of ignorance and the quicksands of presumption to some sure resting-place." To attain these ends, Dr. Wood vindicates the claim of medicine to be considered one of the sciences. Is the art, he asks, a chaotic mass, as its enemies represent it, where there is no general principle to guide, and no scientific rule to follow? The human body, "so strangely and curiously constructed," has its definite laws of action, and the substances by which we endeavour to affect it are alike subject to law. Medicine, as an art, must be based on a knowledge of this strangely and curiously constructed machine—of its laws of action—and of the means whereby we can modify, arrest, or control them.

> "But for such investigations as these, not one science only, but many are required. One mnst tell you of the parts of which the machine is composed, the structure of which they are formed, and the varied character they possess. Another must unfold the wondrous laws which regulate the harmonious working of all these parts. Another must investigate the derangements to which they are liable; how produced, how prevented, and how recovered. Another must examine the agents from without that have been found to affect it—whence procured, how prepared, and how they act. And so each varied branch of science here taught seems to have a practical bearing on the philosophy of our profession." (p. 11.)

Dr. Wood eloquently illustrates his theme by detailed examples of curative ratiocination, and is particularly happy in showing that the varied mothods of treating inflammation, although apparently so directly antagonistic when considered solely by the aid of experience, may be scientifically reconciled with each other.

In an appendix, Dr. Wood considers the "curability of consumption" in a sense adverse to those who affirm it. The advertising quacks who boast their specific for phthisis, and give vain hopes of prolonged life to the sufferer in exchange for his gold, merit every reprobation; but the condemnation should not be too sweeping nor regardless of our common feelings of humanity; and we must confess that the apparently triumphant notice of Dr. E. O. Hocken's death from phthisis impressed us unfavorably and unpleasantly. Physicians have died before of the identical disease to which they had devoted their most special attention; and, indeed, to every medical practitioner, when on his death-bed, might be addressed the taunt "Physician, heal thyself."

A second essay in the appendix criticises the alleged cure of Miss and by other physicians as well, we think she might have been allowed to escape with oblivion, so far as her mesmeric doings are concerned. We think it due to Dr. Wood, however, to say that the critique is ably and temperately written, and has a wider application than to the particular instance. The medical heresies and quackeries of the day exercise a powerfully beneficial, although indirect influence, on medical art and science, and on the medical profession, by recalling the attention of the student and practitioner from the mere trade or *métier*, to a consideration of principles, whether scientific or ethical. We have thus to thank them for Dr. Wood's eloquent address, and we feel satisfied they will still further contribute to the ennobling and purifying of the profession.

ART. X.—*On Stammering and its Treatment.* By Bacc. Med. Oxon.—*London*, 1850. 8vo, pp. 64.

THIS is a sensible and well-written pamphlet, upon a subject which medical men would do well to make their own, instead of allowing it to be taken from them by empirics, who are usually more successful in extracting coin from the sufferer's pocket, than in effecting a radical cure of his defect. The author has taken, we are satisfied, the true view of the pathology of stammering, in regarding it as a chronic *chorea* of the nervo-muscular apparatus of speech, a doctrine which was first broached, if we mistake not, by Dr. Marshall Hall. He points out that, although physical means (such as that recommended by Dr. Arnott) may to a certain extent antagonize the evil, yet its source lies beyond the reach of any such means; and the remedy must be such as will act primarily upon the mind, rather than upon the organ of speech. Every one must have perceived how much stammering, like chorea, is affected by emotional states; and it is to suggestions for the control of these, that the writer chiefly directs the attention of his readers. These suggestions are marked by a clear discrimination of the object to be desired, and by a judicious appreciation of the means of attaining it. They are briefly as follows:

1. To *reduce* mental emotion, by a daily, hourly, habit of abstracting the mind from the subject of stammering, both while speaking, and at other times.
2. To *avoid exciting* mental emotion by attempting unnecessarily to read or speak, when the moral sense assures any one of not being able to accomplish these things without great distress.
3. To *elude* mental emotion, by taking advantage of any little artifice to escape from stammering, *so long as the artifice continues to be* a successful one, and not to listen to the observations of ignorant people on this head.
4. To strengthen physical power by any means which conduce to the general health

We venture to promise to those who will diligently practise this method, a more effectual and permanent cure of their very troublesome affection than they will derive from any more artificial system. Of course its success must depend in great measure upon the degree of self-control possessed by the individual.

Art. XI.—*The London and Provincial Medical Directory for* 1850.

It is scarcely requisite for us to say anything in behalf of a work which is so well established in the estimation of the profession as that now before us, more especially as the present volume does not present, in the nature of its contents, any marked difference from its predecessor. It has, however, undergone a change in its editorial supervision, "the effect of which," says the preface, "will, it is believed, be found in increased accuracy, greater uniformity in the compilation, and additional information." A "Code of Regulations" is now introduced, setting forth the principle upon which the Directory will in future be constructed; and we are informed at its termination, that "a gentleman has been specially retained, whose whole time will be devoted to the purposes of the Directory throughout the year, and who will give precise daily attention to every application, either made personally or by letters." It is obvious that *more* could not be done by the proprietors to secure the correctness of the work; and it remains for the members of the profession themselves to do their part, by putting themselves in communication with the editor, whenever the notice in the previous volume has been incorrect or insufficient. We are happy to see that, in future years, it is intended to mention the most important contributions of each individual to the Medical Journals. Of course a *selective* discretion must be exercised in this; and we would suggest to the editor, that, whilst every writer should be encouraged to name the titles of all the papers which *he* may think of importance, some competent *professional* adviser should be employed to reduce the list to the required limits.

Art. XII.—*Underwood's Medical Appointment Book, Midwifery Register, Diary, and Almanack, for* 1850.

We are glad to find that this useful work has been appreciated by the profession; and that the desire of the publishers to render it acceptable has met with deserved success. It is now issued "in three different sizes, with and without tucks and pockets;" so that it will be hard if every gentleman is not now suited to his liking. The publishers beg that any suggestions for the improvement or alteration of the work may be forwarded to them before the 1st of September in each year, so as to be introduced, when available, into the next edition.

PART THIRD.

Periscope.

ANATOMY, PHYSIOLOGY, AND ORGANIC CHEMISTRY.

Further Experiments on the Influence of the Electro-Magnetic Current on Cadaveric Rigidity. By M. Brown-Sequard.

The following experiments afford an interesting confirmation to those already reported on this subject (p. 249).—One of the posterior members of a rabbit was subjected for half an hour to a powerful electro-magnetic current, and the animal was soon afterwards killed. In about two hours and a half, it was observed that cadaveric rigidity had already commenced in the electrized limb, whilst the other member was still quite supple. About two hours afterwards, the rigidity had already begun to diminish in the electrized limb, whilst it had scarcely commenced in the other. At the end of two days, the electrized limb was already in incipient putrefaction; the other was quite rigid, without any sign of decomposition. Eight days after death, the electrized limb was far advanced in putrefaction; whilst the cadaveric rigidity still persisted in the other limb until the ninth day, and putrefaction did not manifest itself in it until the twelfth.—Similar results were obtained when the two limbs were detached from the body.—A guinea-pig was killed by electro-magnetism; and a current was kept up, for ten minutes after its death, from the head to the anus. When this was interrupted, the cadaveric rigidity already manifested itself in the muscles of the neck and face; two minutes afterwards it appeared in the members, and at the end of half an hour, the limbs had again become supple. On the next morning, only thirteen hours after death, putrefaction was found to have already commenced.—*Gazette Médicale*, Dec. 22, 1849.

In a subsequent communication, M. Brown-Séquard remarks, that the whole series of changes which the muscle undergoes, between the termination of its ordinary life, and its destruction by putrefaction, may be divided into six periods. In the *first*, the ordinary contractility of the muscle manifests itself, on the application of stimuli, with an energy which gradually diminishes according to the time that has elapsed. In the *second*, the effect of stimuli is to produce slow and somewhat prolonged contractions, followed by gradual relaxation: instead of the sudden contraction at once giving place to relaxation, which usually occurs. This form of contraction is but little seen in adult mammalia, and only presents itself when the cadaveric rigidity is long in coming on. In young animals it is more constantly seen; and it is an exaggeration (so to speak) of the ordinary properties of their muscles, which, during life, are much more slowly thrown into contraction by mechanical stimuli than they are in adults. It is frequently seen in frogs, also, during the colder season of the year. The *third* period is that which intervenes between the entire departure of the contractility, and the access of the rigidity. The *fourth* period is that of the complete manifestation of the rigidity. The *fifth* is that in which the limbs are becoming flexible, but putrefaction has not taken place. The *sixth* period is that of positive putrefaction.—All these states have this in common, that whatever circumstance affects one, will modify the rest of them. And everything tends to the establishment of this law: That the duration and energy of the cadaveric rigidity are in a direct ratio to the amount of contractile force in the muscles at the moment of death; whilst, on the other hand, the duration of the period of putrefaction is in an inverse ratio to that amount. The contractile force of the muscles may be enfeebled or even almost destroyed, during life, or at the moment of death, by three causes :—1st. The unfitness of the blood to generate this force, by default of quantity or of quality, or by both; 2d. The exhaustion of the muscular force by too powerful and continuous an excitement; 3d. The dynamical or chemical agency of certain poisons, such as sulphuretted hydrogen.—*Gazette Médicale*, Feb. 2, 1850.

[Of the slow and almost tonic contraction of the muscles, under the influence of mechanical stimuli, noticed by the author as characteristic of the second period, we have a remarkable example in cases of yellow fever, and not unfrequently in Asiatic cholera. The phenomena noticed by physicians in the southern parts of the United States, and put on record by them (especially by Dr. Dowler of New-Orleans), are often extremely curious; they are obviously referable to the *direct* excitation of the muscular contractility, and not to reflex action.]

Researches on the Physiology of the Medulla Oblongata. By M. BROWN-SEQUARD.

THE following are the results of the author's experimental inquiries, made upon fifty-four species of animals, belonging to the five classes of Vertebrata: 1. The life of Batrachia does not seem to be considerably shortened after the removal of the medulla oblongata alone, or with the rest of the encephalon, so long as the animals remain in air of a temperature below 46° (Fahr.) Many individuals have lived, in these conditions, more than three months. 2. The sanguiferous and lymphatic circulation, the cutaneous respiration, the digestion, the mucous, epidermic, and urinary secretions, the nutritive operations, the reflex power, and the properties of nerves and muscles, continue in Batrachia, deprived of the medulla oblongata, with as much rapidity and energy as in those which remain uninjured, and which are exposed to the same temperature. 3. All animals, even adult Mammalia, may survive the removal of the medulla oblongata during from ten to twenty minutes, when their temperature has been reduced below from 86° to 92° For this result, pulmonary insufflation is not requisite. 4. The most remarkable differences present themselves in the duration of life, in the different individuals of the same species, after the removal of the medulla oblongata, these being in exact accordance with the temperature. Thus the duration of life in the Batrachia may be reckoned by *months*, between the temperatures of 32° and 46°; by *weeks*, between 41° and 54°; by *days*, between 50° and 61°; by *hours*, between 66° and 77°; and by *minutes*, between 86° and 104°.—*Gazette Médicale*, Dec. 22. 1849.

[These experiments, like those formerly made by Dr. W. F. Edwards, fully bear out the general principle, that when an animal has sustained a fatal lesion, the length of its survival is inversely as the rate at which it is living, and that this rate is directly as the temperature of its body. This temperature, in cold-blooded animals, is that of the surrounding medium; whilst in the warm-blooded, it is maintained at a nearly fixed standard by their independent calorifying power.]

Motion of Liquids in Narrow Tubes. By M. POISEUILLE.

POISEUILLE has found that the velocity with which water and alcohol flow from narrow tubes is proportional directly to the pressure, and inversely to the length of the tube, provided that this length does not fall below a certain limit, in which case the velocity rises more rapidly than the pressure. He found, further, that all other conditions being the same, the quantity discharged is proportional to the fourth power of the diameter of the tube. In his experiments with alcohol, and with mixtures of alcohol and water, he obtained this remarkable result, namely, that alcohol flows more slowly than water. He noticed, also, that ammonia with water behaves in a similar manner, though it accelerates the flow of serum, whether the serum be pure or mixed with alcohol; from which Poiseuille is led to believe that the effect of ammonia, as an antidote in cases of drunkenness, is due to this action. Poiseuille has convinced himself, by experiment, that the velocity of the flow of liquids was generally altered by the admixture of substances soluble in them; and this alteration was invariably the same, whether the liquids were conducted through solid tubes of glass or of metal, or through tubes of organic substances; as, for instance, the capillary tubes of animals. Upon which he undertook, for the service of physiology, a detailed inquiry into the acceleration or retardation to which the flow of water through narrow glass tubes is subject, when the salts, acids, and bases found in the liquids of the animal body are mixed with the water in quantities as small as those in which they are there present. This *small* addition of foreign substances to the water distinguishes the experiments of Poiseuille from some similar ones instituted by Gerard in 1817, in which these substances were employed in the proportions ¼, ⅓, or even ½. The tables drawn up by Poiseuille indicate that the flow of the liquid is generally accelerated by iodide, bromide, and cyanide of potassium, the nitrates of potassa and of ammonia, the chloride of ammonium and calcium, and acetate of ammonia. These salts, then, so far as they do not act as poisons, mus quicken the circulation of the blood; and, indeed, direct experiments on living horses, have decided this for iodide of potassium, nitrate of potassa, chloride of ammonium, and acetate of ammonia. The other salts that were tested have no influence on the rate of flow. It is remarkable that strong doses of iodide of potassium, from the temperature of 140 F° Fahr. and upwards, and nitrate of potassa from 104° Fahr., retard instead of accelerate the velocity of the current.

All the other cases retard the flow; and there seemed to be only two acids, viz. hydrocyanic and hydrosulphuric, that hasten it.

Poiseuille has also examined the rate at which *blood* flows through these tubes; and he states that equal quantities of the following liquids were found to flow in the following time: serum in 20 minutes and 23 seconds; serum, containing a small quantity of blood-globules, in 21 minutes and 17 seconds; blood, freed from fibrin, in 68 minutes and 47 seconds; water in about 10 minutes.—*Liebig's Report*, p. 111; *Ann. Ch. Phys.* [3] vii, p. 50.

On Coagulation of the Blood. By M. MARCHAL, de Calvi.

M. MARCHAL wishing to reinvestigate Rasori's assertion that the proportion of fibrine is increased by the agency of caloric and movement, performed two series of experiments of which he has given accounts to the Académie des Sciences at different times. In the first, he separated, by Dumas' method, portions of blood into two halves, and exposing the one to a temperature of from 55° to 60° C., and the other to that of a freezing mixture, he found in the former an excess of from 24 to 37 centigrammes per 1000 grammes of fibrine over that contained in the latter; and from these experiments and some other circumstances, he draws these conclusions: 1. That increase of temperature increases the quantity of fibrine. 2. That the excess of fibrine in inflammation is due, in part at least, to the increase of temperature. 3. Fibrine is only albumen molecularly coagulated under the influence of heat. The diminution of the quantity of albumen in inflammation, as noted by Becquerel and Rodier, and the great resemblance if not identity of the two substances, admitted by Mulder, are adduced in proof of this last conclusion.

Remarking upon this communication, M. Bernard observes, that in animals the amount of fibrine seems to bear a considerable relation to their temperature. Thus, in birds it is very fibrinous and plastic, next so in mammals, while in the cold-blooded animals the blood contains little fibrine, and scarcely coagulates. Nevertheless, it is by no means proved that by submitting animals to heat we can render their blood more fibrinous and coagulable, and the contrary seems deducible from Magendie's experiments in 1842. In these, dogs, rabbits, pigeons, &c., were exposed to temperatures varying from 80° to 150° C., until they died, their blood always maintaining the same temperature, whatever might be that of the stove, and this varying from 5° to 7° above the normal, i. e. from 45° to 47° (vice 38°—40°) in mammals, and from 50° to 52° (vice 45°—47°) in birds. So poor, however, had it become in fibrine, as no longer to coagulate spontaneously. These facts do not dis prove Marchal's experiments, but they show that the blood in the living animal does not comport itself as in the experimenter's crucible.

M. Marchal, too, compares the heated blood with the frozen; but it would have been better to have compared it with blood left to itself; for if cold, by preventing coagulation, or in any other way, diminishes the quantity of fibrine, this diminution would be mistaken for an increase produced by heat; and to show how difficult and delicate all these experiments are, and how careful we should be in drawing conclusions from them, it may be mentioned, that if a rabbit be placed in an ice-bath, so as to die there slowly, the blood taken from the heart immediately after death does not coagulate, or only very slightly, and contains hardly any fibrine.

In respect to the second conclusion, it is to be remembered that an increase of fibrine may occur in different, and even opposite circumstances to inflammation.

Thus, in Magendie and Fremy's experiments, in which dogs were subjected to the process of *defibrination* (that is to copious and repeated venesections, the globules and serum being reinjected), the quantity of fibrine increased. But the fibrine then separable by *battage* differed from the normal, inasmuch as after 24 or 36 hours' digestion in water, at a temperature of 50° or 60° C., it was entirely redissolved, and assumed all the characters of albumen. Animals thus defibrinated are far from presenting the characters of inflammation; and it is evident that we must not only take into account the quantity, but the quality of the fibrine.—*Journal de Pharmacie et de Chimie*, 3ᵉ Sér., tom. xvi. p. 221.

M. Marchal believing that by the above experiments (only seven in number) he had affirmed Rasori's conclusion as to the influence of increased temperature upon coagulation, has recently presented an account of his experiments upon that of movement. These contradict the statement of Rasori, and tend to show that agitation diminishes this fibrine. He allowed one portion of blood to coagulate in a state of repose, while a similar portion was shaken in a phial for ten minutes. Of twelve experiments, in ten the quality of fibrine was sensibly diminshed by the shaking; but he finds himself unable to account for the two exceptions. He suggests that these experiments may afford some explanation of the accidents resulting from defibrination observed in some animals who have been run to death. —*Gazette des Hôpitaux*, 1850, No. 9.

Experimental Researches on the Contractility of the Spleen.

The discovery of M. Kölliker, that the spleen contains a number of elongated cells, resembling those which are found in contractile tissues, and probably to be considered as a rudimentary condition of muscular fibre, has suggested experimental researches with a view to the determination whether or not the trabecular tissue of that organ can be excited to contraction by the electric stimulus. Such experiments have been performed by professor Wagner and M. Cl. Bernard, with positive results; the form and dimensions of the spleen being considerably changed by the transmission of the electro-magnetic current through its substance.—*Gazette Médicale*, Dec. 22, 1849.

On the Existence of Two New Kinds of Anatomical Elements in the Medullary Canals of Bones. By M. Ch. Robin.

In all bones, whether short, flat, or long, the medullary tissue contains, besides the adipose cells, the vessels, and the finely granular amorphous matter, a peculiar kind of cells, which may be termed *medullary cells;* these are spherical, or slightly polyhedric, transparent, with defined borders, and generally include a spherical, regular, transparent, sharply-defined nucleus. Between the nucleus and the cell-wall, and especially around the former, there exists a variable quantity of molecular granules. These cells are more abundant in young subjects than in adults; and towards the end of the period of gestation they occupy nearly the whole of the medullary cavity, to the exclusion of the adipose cells.

Another kind of cell is met with in long and short bones, but normally in less amount; the knowledge of these cells, however, is important, because it is in an unusual development of them that some diseases of bones originate. Certain tumours of bone, considered by pathologists as cancerous, are not truly so, but are made up of large plates or flattened lamellæ, sometimes polygonal, sometimes irregularly circular, having a diameter of at least from 1-20th to 1-12th of a millimetre (or from 2 to 3-1000ths of an inch) finely granular in their texture, and containing from six to ten large oval nuclei, which are imbedded in the thickness of the plates. The author states that he has met with these bodies as the principal components of several osseous tumours; and that such tumours owe their origin to an unusual local development of a normal element of bone. For these peculiar bodies are found in the medullary tissue of even healthy bone; being much less numerous, however, than either the true medullary or the adipose cells; but being, like the preceding, more abundant in the bones of young subjects than in those of adults.—*Gazette Médicale*, Dec. 22, 1849.

Rhythmical Movements of the Respiratory and Locomotive Muscles after Death.
By M. Brown-Sequard.

The author has frequently observed movements of a rhythmical character, somewhat resembling those of the heart, in various muscles of animal life, continuing for some minutes after death, and obviously not dependent upon the nervous centres, because they are not affected by section of their nerves. He has seen such movements take place in the diaphragm and intercostal muscles, to the number of from five to twenty per minute, for so long as a quarter of an hour after death. In one instance, that of a vigorous guinea-pig, whose facial nerve had been torn, he has noticed similar movements in the paralysed muscles during life; for ten or fifteen days after the operation, tremulous movements of a rhythmical character were continually seen in the paralysed muscles; and for some months afterwards, they showed themselves whenever the circulation and respiration were hurried, and especially when the latter was impeded. It is hence concluded by the author, that the causes of the rhythmical contractions of the heart are not peculiar to that organ alone, but that they are capable of acting on other muscles; and he thinks that he has obtained evidence that the presence of venous blood in their capillaries is the cause in question. On this point, however, he promises further information. —*Gazette Médicale*, Dec. 22, 1849.

On the Emission of Urine, as observed in an Individual suffering from Ectopia of the Bladder. By Dr. Parmeggiani.

A man, æt. 30, having entered the hospital at Reggio with ectopia of the posterior wall of the bladder, so as to exhibit the orifice of the ureters very plainly, the opportunity was taken to make some observations upon the mode in which the urine entered the bladder. The statement of physiologists that it passes in, drop by drop, was not found to hold good. On the contrary, from time to time it issued in true jets, sometimes fifteen seconds, sometimes thirty seconds, or even two or three minutes elapsing between these, the time varying according to that which had elapsed since fluids were taken into the stomach. The flow had no dependence upon the circulatory or respiratory movements. When emitted, the urine was fetid and alkaline, but in the act of flowing furnished an acid reaction—which is confirmatory of the statement of Stehberger, that the urine is secreted alkaline and becomes acid in the bladder.

Signs of the presence of iodide of potassium were found in one experiment six minutes, and in another twelve, after it had been swallowed; these increasing during twenty-four hours, and then diminishing until they disappeared.—*Omedei Annali*, vol. cxxiv, p. 241.

On a Means of Measuring Degrees of Anæsthesia and Hyperæsthesia.
By M. BROWN-SEQUARD.

THE means proposed consist simply of an application to the pathological conditions in question, of Professor Weber's well known method of measuring the relative discriminating power of different parts of the cutaneous surface, by the degree in which the two blunted points of a pair of compasses require to be separated from each other, in order that the double impression may be felt. Thus, in one case of complete anæsthesia of the lower extremities, the patient only felt a single impression on one leg, when the points of the compasses were 10, 15, or even 20 centimetres apart; whilst on the other leg he could distinguish them at a distance of 12 centimetres. The normal limit is generally from 3 to 5 centimetres. In another case of slighter anæsthesia, the limit of the discriminating power was at from 9 to 15 centimetres. And in another case of very slight anæsthesia, the limit was from 6 to 7 centimetres.—In a case of hyperæsthesia, on the other hand, which accompanied paralysis of the motor power, the patient could perceive the distinctness of the two points on the foot, when they were separated to the distance of only 5 millimetres; the normal limit of discriminating power in that part being from 25 to 30 millimetres. The sensibility to pain, in this case, was as much exaggerated as the tactile sensibility.—*Gazette Médicale*, Févr. 2, 1850.

Elasticity and Cohesion of the Tissues of the Human Body.

WERTHEIM has examined the elasticity and cohesion of the bones, sinews, muscles, nerves, arteries, and veins of the human body, the experiments having been made three or four days after death; from which it appears that, 1st, the specific gravity of tendons, muscles, and veins, decreases with the age of the subject, while, on the contrary, that of the arteries increases, in consequence of an ossification of their walls; 2dly, the bony structure become elongated, almost in exact proportion to the strain upon them, as do inorganic bodies and woods; the soft parts of the body, however, are at first elongated in a greater ratio than they should be, and it is only under the influence of a greater weight that this relation becomes one of direct proportion; 3dly, the coefficients of elasticity of the bones, tendons, and nerves, seem to increase with the age of the subject, while those of the muscles appear to diminish, and that very considerably; 4thly, the cohesion of all the tissues decreases with increasing age; 5thly, the nervous trunks have, for equal sections, less solidity than their branches, while these, again, have less than their fibres, so that the solidity of nerves seems to increase as their thickness diminishes; 6thly, if the several tissues are arranged according to the magnitude of their coefficients of elasticity, or according to their cohesion, in either case the following series is obtained,—bones, tendons, nerves, muscles, veins, arteries; 7thly, the elasticity and cohesion of each and all of these bodies are increased by drying.—*Liebig's Report*, p. 99; *Ann. Ch. Phys.* [3] xxi, p. 385.

On the Diffusion of Liquids. By Professor GRAHAM.

A SALT or other soluble substance once liquefied and in a state of solution, is evidently spread or diffused uniformly through the mass of the solvent, by a spontaneous process. It has often been asked whether this process is of the nature of the diffusion of gases; but no satisfactory answer to the question appears to have been obtained, owing to the subject having been studied chiefly in the operations of Endosmosis, where the action of diffusion is complicated and obscured by the imbibing power of the membrane, which appears to be peculiar for each soluble substance, but not to be necessarily connected with the diffusibility of the substance in water.

In order to avoid this source of fallacy, Professor Graham has studied the phenomenon with an apparatus constructed as follows. It consisted of an open phial, to contain the solution of the salt to be diffused, which he calls the "solution-cell;"

and this was entirely immersed in a large jar of pure water, so that the solution in the phial communicated freely with the latter,—the two together forming a "diffusion-cell."

The diffusion was stopped generally after seven or eight days, by closing the mouth of the phial with a plate of glass, and then raising it out of the water-jar. The quantity of salt which had found its way into the water-jar—the "diffusion product" as it was called—was then determined by evaporating to dryness.

The characters of liquid diffusion were first examined in detail with reference to common salt.

It was found, first, that with solutions containing 1, 2, 3, and 4 per cent. of salt, the quantities which diffused out of the phials into the water of the jars, and were obtained by evaporating the latter, in a constant period of eight days, were as nearly in proportion to these numbers, as 1, 1·29, 3·01, and 4·00; and that in repetitions of the experiments, the results did not vary more than 1-40th part. The proportion of salt which diffused out in such experiments, amounted to about 1-8th of the whole.

Secondly, that the proportion of salt diffused increases with the temperature; an elevation of 80° Fahr. doubling the quantity of chloride of sodium diffused in the same time.

The diffusibility of a variety of substances was next compared, a solution of 20 parts of the substance in 100 water being always used. Some of the results were as follows, the quantities diffused being expressed in grains: Chloride of sodium, 58·68; sulphate of magnesia, 27·42; sulphate of water, 69·32; crystallized cane sugar, 26·74; starch sugar, 26·94; gum arabic, 13·24; albumen, 3·08. The low diffusibility of albumen is very remarkable, and the value of this property in retaining the serous fluids within the blood-vessels at once suggests itself. It was further observed, that common salt, sugar, and urea, added to the albumen under diffusion, diffused away from the latter as readily as from their aqueous solutions, leaving the albumen behind in the phial. Urea itself it is as highly diffusible as chloride of sodium.

In comparing the diffusion of salts dissolved in ten times their weight of water, it was found that isomorphous compounds generally had an equal diffusibility, chloride of potassium corresponding with chloride of ammonium, nitrate of potash with nitrate of ammonia, and sulphate of magnesia with sulphate of zinc. The most remarkable circumstance is, that these pairs are "equi-diffusive," not for chemically equivalent quantities, but for equal weights simply. The acids differed greatly in diffusibility, nitric acid being nearly four times more diffusive than phosphoric acid; but these substances also fell into groups, nitric and hydrochloric acids appearing to be equally diffusive, as also acetic and sulphuric acids. Soluble subsalts and the ammoniated salts of the metals present a surprisingly low diffusibility; the quantities diffused in similar circumstances of the three salts, sulphate of ammonia, sulphate of copper; and the blue ammonio-sulphate of copper, being very nearly as 8, 4, and 1.

When two salts are mixed in the solution-cell, they diffuse out into the water-atmosphere separately and independently of each other, accordiug to their individual diffusibilities. This is quite analogous to what happens when mixed gases are diffused into air. An important consequence is, that in liquid diffusion we have a new method of separation or analysis for many soluble bodies, quite analogous in principle to the separation of unequally volatile substances in the process of distillation. Thus, it was shown that chlorides diffuse out from sulphates and carbonates, and salts of potash from salts of soda; and that from sea-water the salts of soda diffuse out into pure water faster than the salts of magnesia. The latter circumstance was applied to explain the discordant results which have been obtained by different chemists in the analysis of the water of the Dead Sea, taken near the surface; the different salts diffusing up, with unequal velocity, into the sheet of fresh water, with which the lake is periodically covered during the wet season.

Professor Graham has further shown, that chemical decompositions may be produced by liquid diffusion; the constituents of a double salt of so much stability as common alum being separated, and the sulphate of potash diffusing in the largest proportion. In fact, the diffusive force is one of great energy, and quite as capable of breaking up compounds as the unequal volatility of their constituents. Many empirical operations in the chemical arts have their foundation in such decompositions.

Again, one salt, such as nitrate of potash, will diffuse into a solution of another salt, such as nitrate of ammonia, as rapidly as into pure water; the salts appearing mutually diffusible, as gasses are known to be.

Lastly, the diffusibilities of the salts into water, like those of the gases into air, appear to be connected by simple numerical relations. These relations are best observed when dilute solutions of the salts are diffused from the solution-cell, such as 4, 2, or even 1 per cent. of salt. The quantities diffused in the same period of seven days from 4 per cent. solutions of the three salts, carbonate of potash, sulphate of potash, and sulphate of ammonia, were 10·25 grains, 10·57 and 10·51 grains respectively; and a similar approach to equality was observed in the 2, 4, and 6 per cent. solutions of the same salts. It also held at different temperatures. The acetate of potash appeared to coincide in diffusibility with the same group, and so did the ferrocyanide of potassium. The nitrate of potash, chlorate of potash, nitrate of ammonia, chloride of potassium, and chloride of ammonium formed another equi-diffusive group. The *times* in which an equal amount of diffusion took place in these two groups appeared to be as 1 for the second to 1·4142 for the first, or as 1 to the square root of 2. Now, in gases, the times of equal diffusion are *the squares of the densities of the gases*. The relation between the sulphate of potash and nitrate of potash groups would therefore [fall to be referred to the diffusion-molecule of the first group having a density represented by 2, while that of the second group is represented by 1.

The corresponding salts of soda appeared to fall into nitrate and sulphate groups also, which have the same relation to each other, as those of the potash salts.

The relation of the salts of potash to those of soda, in times of equal diffusibility, appeared to be as the square root of 2 to the square-root of 3; which gives the relation in density of their diffusion-molecules, as 2 to 3. Hydrate of potash and sulphate of magnesia were less fully examined, but the first presented *sensibly* double the diffusibility of sulphate of potash, and four times the diffusibility of the sulphate of magnesia. If these times are all squared, the following remarkable ratios are obtained for the densities of the diffusion-molecules of these different salts, each of which is the type of a class of salts—hydrate of potash 1, nitrate of potash 2, sulphate of potash 4, sulphate of magnesia 16; with nitrate of soda 3, and sulphate of soda 6.

It is these diffusions-molecules of the salts, which are concerned in solubility, and not the Daltonian atoms or equivalents of chemical combination; and it is obvious that a knowledge of the diffusibility of different substances is required for the study of endosmose, in which the effect due to diffusibility should be distinguished and separated from the proper action of the membrane employed.—*Bakerian Lecture*, Dec. 20, 1848.

[We have given this full abstract of Prof. Graham's researches, from a belief that they will come to have an important value in physiological inquiry. Besides the low diffusibility of albuminous fluids to which he has adverted, we may notice the relative diffusibility of substances introduced into the current of the circulation, as likely to exert an important influence on their *modus operandi*.]

On Gelatine as an Alimentary Substance. By M. Berard.

The Minister of Public Instruction having consulted the Académie de Médecine upon the propriety of allowing gelatine to be prepared from bones, for the use of a hospice at Toulouse, a committee was appointed to report upon the question—"Can gelatine, prepared from bones by any of the usual procedures, be employed with advantage in the alimentation of man? Can a certain portion of it supply the place, in soups, of the soluble principles which a determinate quantity of meat yields?" This question, in fact, of whether gelatine may not, associated with other substances, contribute to the reparation of the frame, has long excited the greatest interest among scientific inquirers and administrative bodies; and the celebrated "Gelatine Committee" of the Académie des Sciences delivered a report, after ten years' investigation, very adverse to the extensive employment of this substance—a conclusion also confirmed, some time after by the Belgian Institute.

On the present occasion the reporter, M. Berard, believes that ample materials for forming an opinion exist, without the necessity of resorting to new experiments; and for this purpose he takes a review of the various investigations which have been entered into, from the period of 1817, when the so-called "alimentary gelatine" was prepared, on a large scale, by steam (four oxen being thus declared to be convertible into five), until those of Liebig, Bernard, and others of our own times. The following are the conclusions he arrives at:

1. The reparative powers of soups are not proportionate to the quantity of gelatine they contain.
2. These properties are due, in great part, to other principles which meat yields to water in which it has been boiled.
3. The solution of gelatine, known by the term "alimentary," does not contain these principles.
4. The addition of gelatine to the regimen does not admit of any sensible diminution of the quantity of other aliments employed, and therefore offers no economical advantages.
5. The addition of this substance to aliments deranges the digestive organs in many persons, and therefore in a hygienic and dietetic point of view, it is not without inconveniences.
6. For all these reasons, the construction of apparatus for its preparation in charitable establishments should not be encouraged.—*Gaz. des. Hôpitaux*, 1850, No. 11.

On the Differences in the Energy of Reflex Action, according to Species and to Age, in the Five classes of Vertebrated Animals. By M. Brown-Sequard.

It is commonly affirmed that the reflex power is much stronger in cold-blooded than in warm-blooded animals. This opinion is correct so far as regards the contrast between the Mammalia and the Batrachia, the animals usually compared; but the real order, according to the author, is as follows:—1. Birds. 2. Amphibia and Reptiles. 3. Mammalia. 4. Fishes. Of course there are exceptions to this rule in the case of particular species; thus, the eel, carp, and tench, have at least as much reflex power as mammalia possess. It has also been commonly affirmed that the reflex power diminishes with age, being greatest in young animals. This statement, too, has been based on a limited induction. In reptiles and fishes no difference can be detected in this particular. In birds it is decidedly the other way, the reflex power being much the strongest in adults. Among mammalia the difference is usually in favor of the young animal; not, however, at the very earliest period of its life, but ten or twelve days after birth. The author maintains that there is a constant relation between the energy of reflex action and the amount of grey matter in the spinal cord, having especially observed this relation in the case of the lumbar enlargement.—*Gazette Médcale*, Févr. 2, 1850.

PATHOLOGY AND PRACTICE OF MEDICINE.

Case of Smallpox without obvious Contagion. By Dr. Banks, of Laurenceville, Ill.

A lady, æt. 20, pregnant five months, and of robust constitution, after several day's febrile action became the subject of a well-marked attack of confluent smallpox. The desquamation was by the fifteenth day in "full blast," when secondary fever arose, and before "she had scaled off," she sank and died, having, about the tenth day, given birth to the child, which was covered with eruption, and lived but three hours. The nature of her case was not understood by her attendants, until it was found that she had become a focus of smallpox contagion, which spread freely among the non-vaccinated. The family of this lady lived in an out-of-the-way place, no smallpox having been within a hundred miles of it, and no intercourse with strangers to the village, or with person, from a distance, having occurred for months Although she was ill seven days before the special symptoms of smallpox appeared, the eruption in those who took it from her, or from others who did so, commenced at the end of the third, or beginning of the fourth day.

The editor of the journal in which this case is inserted, refers to two which recently occurred in the Eastern Penitentiary of Pennsylvania, in which the "separate system" is strictly enforced. In one of the cases, the convict had been incarcerated for two years, and the other for six.—*Philadelphia Medical Examiner*, N. S., vol. v, p. 519.

On the Treatment of Ague by a Single Dose of Quinine. By Dr. C. Pfeufer, of Heidelberg.

Dr. Pfeufer states he has had much opportunity of treating this disease, and was formerly in the habit of prescribing from 15 to 20 grains, in divided doses, in the intervals of the paroxysms. Latterly, he had given five-grain doses, until from 40 to 60 grains were taken, and with great success. The number of patients having greatly increased during the bivouacs consequent upon the revolutionary disturbances, the expense of so much quinine was found a serious consideration; and he determined to try, whether by a different mode of administration less might not suffice, and, certainly, if the results he has arrived at are confirmed by others, he will have conferred no ordinary boon upon the distributors of charitable medical relief. He finds, indeed, not only that the expense may be vastly diminished, but the cure expedited and rendered more certain, by administering a *single ten-grain dose* (made into four pills, with ext. of *millefolium*), on a day free of fever. This dose is well borne, none of the inconveniences which result from the long continued use of small doses, or the tinnitus, giddiness, &c., produced by very large ones, presenting themselves. The subsequent attack is weaker, and its successors still more so, the convalescent remaining in the hospital from four to eight days. A tabular view of the particulars of 34 cases so treated is given.—*Henle and Pfeufer's Zeitschrift*, B. viii, pp. 234-44.

On a Case of the Spontaneous Reproduction of Cowpock. By Dr. Rupprecht.

Dr. Rupprecht reports the case of a girl (æt. 14) who was seized with influenza. She complained of pain in each arm at the spots where, when an infant, she had been vaccinated; and in fact these localities vaccine vesicles now became perfectly developed. An elder sister was revaccinated with the lymph hence obtained; beautiful vesicles formed, and ran a normal course.—*Casper's Wochenschrift*, 1849, No. 51.

On Chlorotic Tinnitus. By Dr. Froriep.

From Dr. time to time, for years past, Froriep has met with, in delicate yet florid looking girls, *tinnitus aurium* in various degrees, oftentimes accompanied with a considerable difficulty of hearing. He long treated these cases with every variety of means, without any good results. Bearing in mind then that symptoms of apparent congestion in chlorosis are so beneficially treated with iron, he employed it *in these* cases, whenever the general condition and the white lips and gums, in even fresh-coloured countenances, seemed to indicate a chlorotic basis in the disturbance of the health; and he is very anxious to impress on practitioners the great benefit that ensued. No disease is more common than chlorosis, and none so often mistaken or overlooked in some of its forms, so that many young women lose several of the best years of their lives merely because ferruginous preparations have not been administered for a few months.—*Froriep's Notizien*, B. x, p. 32.

On Mucous or Catarrhal Pneumonia in Children. By M. Duclos.

M. Duclos observes, that while formerly studying the diseases of children under MM. Trousseau and Blache, he had been much struck by a fact which all observers must have sometimes remarked in young children, viz. that a widely extended pneumonia is more readily cured than some examples of a much more limited character. Thus, while a case of double pneumonia yields to treatment in from nine to twelve days (the average period in early childhood), another of far less extent, and not yet reaching hepatization, proves fatal in four or five days. On examining into these latter cases more closely, they were found to differ from the others in their mode of production, symptoms, and anatomical characters; and, on account of such difference, the author designates them as *mucous pneumonias*. They are found especially in vigorous stout children, whose mucous secretions are abundant, and usually commence in a cold or bronchial catarrh, and often during the first dentition. The child coughs for some days, with or without fever, but repeated auscultation only detects the signs of ordinary catarrh; when, at a certain point, the symptoms of pulmonary inflammation suddenly set in.

The pneumonia of infancy is recognised by the subcrepitant *râle* in lobular, and the *souffle* in lobar pneumonia, by fever, dyspnœa, with movement of the alæ nasi and the development of a depression along the base of the chest, corresponding to the insertions of the diaphragm, and so characteristic as to be termed by Trousseau the *peripneumonic furrow*. In *mucous pneumonia*, all these are present, but the inflammation is never lobar, and consequently no *souffle* is present; and a mucous *râle*, due to the abundant bronchial secretion, masks the subcrepitant *râle*. The symptoms are those of the suffocative catarrh of adults; but the autopsy exhibits also the alterations found in lobular pneumonia.

It is an affection of great danger, and one concerning which, owing to its seeming to be a mere bronchitis, a too favorable prognosis at first is almost constantly given. The pneumonia once becoming developed danger is very imminent. The free use of emetics forms the best medication, and, if given in the form of syrup, they are readily taken. For a child a year old the following formula may be employed—℞ *Syrup. Ipecac.*, ℥ i; *Pulv. Ipecac.*, gr. ii.; *Ant. Tart.*, ¼. gr. A teaspoonful is given every ten minutes until five or six vomitings have occurred. The mixture is then suspended for several hours, and resumed in the same manner—a rather larger dose being now usually required in the intervals, some advantage may be gained byadministering small doses of the white oxide of antimony and Kermes mineral in an emulsion, but this is merely adjuvatory. External revulsives may also be had recourse to, and Dr. Duclos entertains a high opinion, both in this and other forms of pneumonia in children, of the application of blisters to the legs, and encouraging suppuration afterwards by stimulating dressings. In spite of all treatment, however carefully directed, great numbers will succumb—*Bulletin de Thérapeutique, tome* xxxvii, pp. 441-6.

A Peculiar Furuncular Epidemic. By Dr. Clemens.

As physician to a chemical and colour manufactory at Frankfort, the author had an opportunity of observing a peculiar form of disease produced by the water in use becoming impregnated with the *hydrothionic acid* produced at the factory, and ceasing as soon as such impurity was removed. Within a short period all the workmen fell ill. Together with a feeling of weakness of the limbs, they complained of loss of appetite, bad taste, and pain at the stomach, amounting at intervals to severe cramp. The tongue was little loaded; the mucous membrane of the throat was very white; the pulse, at first normal, became very slow and compressible, while the excretions were tardy. No means gave any relief to these symptoms, when after from four to ten days, or later, a cutaneous affection was somewhat suddenly developed, especially upon the face, neck, and hands. Hard swellings appeared, some going through the stages of ordinary furuncle, but suppurating very slowly; others only scabbing over, and forming a succession of hard knobs varying in size from a nut to a walnut, causing very painful distension of the skin, especially when seated on the lips and near the eyelids. As the eruption appeared, the stomach symptoms usually ceased and the appetite returned, the patients, however, long complaining of a peculiar taste which they compared to chewed straw. When the skin affection was extensive (and in some there were eight or ten of these furuncles), and the formation of pus was defective, the patients complained of much oppression of the head and giddiness. The most marked relief to both general and local symptoms followed free purging.

The author is in doubt whether he should exclusively attribute the ill-condition of the open furuncles to the influence of the economy, as he observed that when the sulphuretted and carburetted hydrogen of the factory became mingled with the atmosphere, the healing process was much retarded ; and the workmen brought much in contact with these gases complain that their wounds heal very badly. Those workmen who were employed in a highly heated atmosphere (95°—100°), although they drank the same water, and suffered from the same stomach-symptoms, manifested no eruption—the profuse perspiration induced in them evidently holding the place of this.

With other impurities, the water was found to contain dydrothionic acid, which had indeed given it so bad a taste that it had only latterly been used for working. It is the custom of the factory to liberate its sulphuretted and carburetted hydrogen gas, &c., by night, to be carried away in the air ; but about this period abundant and incessant rains had been falling, and the hydrothionic acid being very soluble, the author believes a certain quantity of it became absorbed by the rain, and thus got access to the water. In fact, he detected it, with small droplets of oil, in rain-water collected at various points. So Braconnot and Simonin ('Jour. de Chim., Med., 1848') found in the vicinity of some sulphate of lime, muriate of soda works, sulphate of lime, muriate of soda, and an organic matter in the rain-water—the workmen and neighbours being very liable to disease of the eyes. Dr. Clemens was surprised to find the wells containing the acid in much the same quantities even fourteen days after. The vegetation of the vicinity was in a very unhealthy state, and all plants exclusively watered with this water soon fell ill. As the rains became less frequent and the wells sank, so did this substance gradually disappear. Although the injurious effects of sulphuretted hydrogen are well known, the author is not aware that similar results from chronic poisoning by it have been recorded. Small quantities of hydrothionic acid may indeed be generated in the system without ill effect, but as this results from the decomposition of the fæces at the lower extremity of the alimentary canal, it is soon expelled.—*Henle and Pfeufer's Zeitschrift*, Band viii, p. 215.

Clinical Convictions respecting Ascites, expressed in the form of Propositions.

By Dr. Dubini.

1. When ascites is not the result of a preexisting, or present, acute or chronic primary peritonitis, it will be found to depend upon hypertrophy with degeneration of the hypochondriacal viscera, the presence abdominal tumours, a prior or existing dysentery, or upon *cirrhosis* of the liver.

2. In fact, peritonitis, depending on these various conditions of the viscera, is almost always the efficient cause of the effusion. In respect to the operation of visceral hypertrophy and abdominal tumours in inducing it, there can be no doubt. In dysentery, with ulceration of the mucous membrane, inflammation of the peritoneal coat is found. In *cirrhosis*, observation would seem to show, that the fluid may collect in consequence of peritonitis, or, on the other hand, mechanically from obstruction of the capillaries of the liver.

3. Post-mortem examinations prove, that defective absorption by the lymphatics, as a cause of dropsy, is a scholastic fable. Atony may follow the distension and destruction of tissus in the dropsical, but it is never, or with exceeding rarity, primary.

4. Ascites must not be confounded with other serous effusions, especially with general anasarca. The common causes of general dropsy, as hydræmia, scarlatina, Bright's disease, suppressed perspiration, &c., are not the direct causes of ascites, which, as already observed, has its own special cause, and seems also to recognise other directly or indirectly predisposings ones, such as intermittent fevers, abuse of spirituous drinks, and a certain inelastic and relaxed state of the organic tissues.

5. Diseases of the heart, so frequent a cause of anasarca, are never the primary cause of ascites, and if the two are found in coexistence, it is a mere coincidence. A diseased heart may lead to a hypertrophied or degenerated state of the liver, and this may give rise to ascites.

6. In enormous and old ascites, in which long and forcible pressure has been exerted upon the viscera by the fluid, a shortening of the intestinal tube takes place. In one case, the entire length of the canal was not more than three times that of the body.

7. The treatment by means of drastics is prompt, and always much desired by the patient, who wishes to relieve the distension as rapidly as possible. It is rare for them, however, to produce permanent cure, and the relief they at first afford is often followed by a relapse, under the influence of which the patient quickly finds himself in a worse state than before. If a red, shining, or excoriated tongue indicate a preexisting diarrhœa, in place of a relapse, drastics will cause irreparable mischief, by provoking a second and artificial diarrhœa, which will only cease with life itself.

8. Diaphoretics, employed in this generally non-febrile disease, are praised in the books: but what practitioner ever prescribed them for apyretic ascites? Nature alone, in particular cases, contrary to our physiological laws, induces simultaneous profluvia of sweat and urine, until the ascites is totally dispersed. Iodine and mercurial frictions are but therapeutical delusions, although in certain cases, in which the symptoms of peritonitis still exist, calomel may be of service. The frequent failure of diuretics is well known.

9. When even the local abstraction of blood is no longer admissible, and it is hence presumable that the peritonitis no longer exists, *compression* of the abdomen by a bandage is a useful aid to diuretics. Like all other means it may be misused, but twelve years' experience of it leads the author to state, that if the dropsy be not encysted, and the lower extremities have not become œdematous, compression will not only in the majority of cases remedy the effect, but frequently also remove the morbid cause of the effusion. In very many cases, he has seen the same diuretics, which had long been uselessly employed, succeed admirably as soon as a methodical compression was conjoined to their use.

10. After recovery, when the ascites has depended upon dysentery or primary chronic peritonitis, a relapse may be prevented by opening an issue, at the inner side of the leg, just below the knee. After the application of a very small blister, a minute ivory ball may be compressed against the denuded surface to effect this.

11. There are certain cases of anasarca, from *hydræmia*, in which the ascites though not primary is very considerable, and threatens suffocation from its rapid increase. In these there is always found a degree of hypertrophy of the liver, a section exhibiting it of a bright yellow colour, and of the consistence of soft chalk. The blood is scarcely red, and very watery. All the symptoms of chlorosis, and some of those of scorbutic are present, as palpitation, syncope, vertigo, tinnitus, muscular debility, pallor of the mucous membranes, anorexia, thirst, constipation, paucity of urine, and sweating, with frequent attacks of epistaxis. In these cases, the *souffle* heard after the first sound of the heart is rather referable to the serous crasis of the circulating fluid, than to any defect in the circulatory organ. For this train of symptoms the author had long sought medicinal substances, which, while they proved unstimulating diuretics, might remedy the condition of the blood without disposing the organism too much to a state of phlogosis, which, in subjects of hydræmia, always terminates in new effusions, that in their result prove fatal, if they do not so in their immediate consequences. What he terms a "martial

lemonade," has best fulfilled by its effects the chief indications, and especially by causing a free diuresis. It is formed by dissolving six grains of *sulphate of iron* in a pound and a half of water sweetened with an ounce of syrup, and adding a drachm of *sulphuric acid*—the period and continuance of its administration, and the dose in which it is given, being regulated by the practitioner, according to the exigencies of the case. Its use is contra-indicated in those cases in which the tongue is red and glazed, or has prominent papillæ, and when a certain amount of febrile action indicates the presence of thoracic inflammation or of hepatic peritonitis.—*Bulletino delle Scienze Mediche*, ser. 3, tom. xv, pp. 343-51.

Anatomico-Pathological Appearances of the Internal Ear in Typhus.

By Dr. PASSAVANT, Frankfort.

THE hardness of hearing and tinnitus, varying in degree in different patients and in different usages of the disease, are well known symptoms in typhus; and to elucidate their cause, Dr. Passavant has carefully examined the ears of a great number of persons dying of this disease.

As soon as the dura mater is removed from the petrous bone, numerous bluish-red spots appear on its surface, announcing an excess of blood; and on saving through it, it is found, except in the dense lamina close to its upper surface, *to be* thoroughly injected. The membrana tympani has lost its brightness and transparency, and become mere or less reddened and tumefied. Its epithelial layer is easily removed, as a dirty-white pellicle, after maceration. Beneath this the *membrane* is found greatly injected and increased in thickness, and may be easily removed in connexion with the lining membrane of the meatus, which along its inner half is also much injected. This leaves the third layer of the membrane, which contains very few vascular ramifications.

Within the cavity of the tympanum is found a tough, thready mucus, resembling the nasal. Sometimes the cavity is entirely filled with this, to the exclusion of all air; at others, a few vesicles can be seen beneath the lining membrane before this is detached; in other cases, again, the mucus only occupies the walls, and *air* the centre, as was seen in a patient who died during convalescence. So also may the mastoidean cells and Eustachian tube be entirely filled with mucus, or partly with it and with air. The mucous membrane lining all these parts and *covering* the ossicula, is the seat of more or less injection; the red colour, however, in the tympanum being often very unequally diffused, occupying especially the depressions, while the promontory and ossicula have their normal colour—although upon this white ground single vessels are detectible. The vascular injection is especially well shown if the sun is allowed to shine through the thin, bony partition of the carotid canal, when also small ecchymosed spots can be seen. It is often difficult to decide, even with a glass, whether these spots result from an effusion of blood or very minute injection. Towards the Eustachian tube the injection diminishes, so that about its middle, some separate vessels, coursing over the mucous membrane, are alone perceived.

Careful examination of the *Labyrinth* has detected no constant change. *Sometimes* there was found injection of some portion of its lining membrane, or even slight ecchymosis; but no change was discernible in its aqueous or nervous contents.

In *all* the patients examined, the above appearances of injection and mucous accummulation were found, but in very different degrees, just as did the degrees of intestinal lesion vary; and as the author has frequently examined the ears of persons dying of other diseases, without finding these appearances, he is disposed to consider them as peculiar to typhus. Of course quite different *appearances are* found in cases of internal *otitis*, in which there is suppuration or metastatic cerebral abscess—cases mistaken sometimes during life for typhus.—*Henle and Pfeufer*, B. viii, pp. 199-207.

On a New Form of Mental Disease. By Dr. Luther Bell.

We have abridged Dr. Bell's title of his essay, which runs as follows: "On a Form of Disease resembling some advanced Stages of Mania and Fever, but so contradistinguished from any ordinarily observed or described combination of symptoms, as to render it probable that it may be an overlooked and hitherto unrecorded malady." He has brought the subject before the Association of Superintendents of Asylums, believing that they will recognise the validity of the distinctions. His own personal observation relates to about 40 cases in 1700 admissions, which have taken place during the last twelve years into the M'Lean Asylum. Three fourths of these cases have terminated fatally, while the remainder so promptly and entirely recovered that this fact forms one of the characteristics of the affection—the recovery being as absolute as that after the delirium of any acute disease.

The following are the chief distinctive symptoms pointed out by Dr. Bell: 1. The rapid onset of the disease, few cases dating back more than a week before admission. 2. The very urgent want of sleep. 3. The absence of undue arterial action. 4. The utter loss of appetite, or rather a loathing of food, (accompanied with a loaded and reddened tongue) which leads the patient to suspect it to be poisoned or filthy. 5. The intellectual aberrations resemble the low mutterings of typhoid fever, except that the faculties can be stimulated temporarily, and the wandering suspended for a moment or two, by exciting the attention by a direct inquiry. The hallucinations seem to partake of an indefinite sensation of distress and horror, under the influence of which the patient makes constant attempts to get out of bed, and in almost all cases requires to be fastened down. Actuated by this sense of danger he will often attack those who approach him with a blind fury. If held, he will struggle with the utmost desperation, irrespective of the number or strength of those who may be endeavouring to restrain him. There is no just calculation of the numbers supposed to be attacking him, no disposition to yield to overpowering force, noticeable in some degree in the blindest fury of the most intense forms of ordinary mania. 6. The disease is acute in its march and sequel, running its course in three or four weeks; recovery, when it does take place, being complete and permanent.

Although this mental affection was for a long period supposed to be dependent on the existence of *typhoid fever*, and much resembles it, the experienced observer will distinguish the two; for the muttering delirium of typhus does not show itself at so early a period; there is in this affection a want of infectious character, and an absence of eruption and of the pathognomonic lesions of fever. As distinguishing the disease from *mania*, we observe that the mental disturbance is rather delirium than mania; the appetite and digestion in mania are usually good or preternatural, and sleep, though abridged does occur. Mania rarely ever has an acute onset without being preceded by strangeness and other doubtful signs, seldom lasts less than two months, perhaps is always followed by a period of depressed spirits, and rarely terminates in death. In mania, too, the bodily strength is maintained throughout, while in this disease a state of marked collapse, except while under the excitement of apprehended danger, is of very early occurrence. Contrasted with it *delirium tremens* presents us with the cause in the history of the patient, and is marked by more distinctness in the false images generated by the brain. In it, too, the smell of the perspiration in which the patient is bathed is pathognomonic; and its course does not occupy more than eight or ten days, refreshing sleep, in cases of recovery (which are frequently spontaneous), recruiting the nervous energy. In comparing it with *inflammatory affection of the brain and membranes*, it is remarkable that the pulse is one of irritation, not inflammation, and deters all from bleeding; there is no pain in the head, intolerance of light, high raving delirium, or thirst. The application of cold to the head gives no relief, while this is obtained from means that would aggravate inflammatory action. The affection agrees with *passive congestions of the brain* in the decided effects produced by stimuli, and, in some, relief from incumbency; but does not coincide in the pale surface, the general consciousness, except perhaps for short periods, and the chronic character of the congestions. In reference to the influence which "congestion" exerts in general in the production of mental disorder, Dr. Bell observes:

"Much as all of us daily hear of a "congestion of the blood in the brain," of 'an overflow upon the head,' or however otherwise the phraseology conveying the same idea may be varied, we should perhaps all agree that the evidence of such a state as connected with any abnormal mental condition were exceedingly meagre. We should probably all coincide in the conviction, that the circulatory function performs a very obscure and insignificant part in all the ordinary forms of cases received within the walls of an insane hospital. We may not improbably, from hearing so much of the mistaken recognition of this connection, and seeing so little of it, be rather indisposed in cases like that under view, mimotic of derangement rather than really essential, to give a fair consideration to this possible explanation."

The bold administration of diffusible stimuli—the effect on the patient, not the quantity administered, regulating the conduct of the practitioner—is the treatment that proves most successful in these cases.—*American Journal of Insanity*, vol. vi. pp. 97, 127.

[We regret to find that the above publication, which has been of great service in aiding the advance of psychological science and medicine, is likely to be brought to a close by the death of Dr. Brigham, its founder, who carried it on at a great pecuniary sacrifice. The last two years have proved terribly fatal to leading men in our profession on every side (as Prichard, Key, Reid, in England, Blaedin and Prus in France, Tommasini in Italy, Walther in Prussia, and many others) and the loss it has sustained in Dr. Amariah Brigham is not one of the slightest. Of delicate health but enthusiastic temperament, and from a boy ardently desiring to enter the medical profession, by his untiring industry and love of learning he was enabled, though commencing life in another and subordinate capacity, to do so, and to achieve great success in its pursuit. Of a highly benevolent turn of mind, he had of late years exclusively and untiringly devoted himself to the laudable endeavour to render the New York State Lunatic Asylum a model institution; and all who have perused the reports emanating hence must have become aware how powerfully he was cooperating with the leading minds of Europe, in improving the condition of the insane. He felt most acutely the loss of an only son, soon after which his health began to break up, and he died of dysentery, September 1849, aged 51. To those of our readers who are not acquainted with his little tract on the 'Influence of Mental Cultivation and Mental Excitement upon the Health," we can cordially recommend its perusal, as containing truths highly important to be borne in mind by those engaged in conducting or advising upon the education of the young.]

SURGERY.

On Femoral Hernia. By M. MALGAIGNE.

M. MALGAIGNE has recently published an interesting series of papers upon femoral hernia, a few passages from which we here transcribe.

The differential diagnosis of Femoral and Inguinal Hernia. Where the track of the hernia is distinct, there can be no difficulty in distinguishing between these; but sometimes, though very rarely, cicatrices or bands induce a deviation of this. Much oftener, in their early stages, the inguinal or femoral hernia, separated from each other only by the thickness of the Fallopian (Poupart's) ligament, intrench more or less on this, either on the one side or the other, and then the track of the hernia becomes doubtful. It becomes of importance, therefore, to observe the exact position of the two rings. The femoral ring is situated somewhat more externally than the inguinal, and is bounded on its outer side by the femoral artery, the pulsations of which are always perceptible, above by the Fallopian ligament, and below by the pubis. The inguinal ring, in its normal state, is bounded by its two pillars above and below, and has no artery on its external side. We find the femoral ring by passing the finger along the inner side of the artery, backwards and upwards, until it rests on the pubis behind, and is arrested by the Fallopian ligament above. The inguinal ring is found by feeling for the spine of the pubis, into which its lower pillar is inserted.

When we have to do with a hernia of doubtful nature, we should return it, and observe at which aperture it disappears. Sometimes the return takes place too rapidly for this to be remarked, and we should then apply a finger at one of the apertures, while the patient makes an effort to reproduce the hernia. If we feel it tend to escape by the one aperture, or it succeeds in doing so by the other, all doubt is removed. In this way I have seen the nature of a very difficult case decided. A young woman consulted M. Marjolin for a small tumour in the groin, which appeared and was returned from time to time. When M. Marjolin placed his finger on it, it disappeared so suddenly, that he was unable to observe its course, and all attempts to cause it to reappear proving unavailing, he sent the case for my opinion. I know of no example of inguinal hernia refusing to reappear after reduction, except in the case of congenital hernia of young subjects ; and as, on making this patient cough, nothing appeared at the inguinal ring, while a strong impulse was felt at the femoral ring, I had no doubt of its being a femoral hernia.

When a hernia is irreducible, it may so ride over the Fallopian ligament as to prevent this being felt, while the raised state of the skin prevents the finger reaching the rings in a direct manner. More than one operator has discovered the true nature of such a hernia, only after the exposure of the neck of the sac. If we push down the skin somewhat at the upper and inner part of the tumour, we may often reach the spine of the pubis, and judge whether the inguinal canal is occupied by a hernia, and the same manœuvre repeated at the lower and middle portion of the hernia allows us to examine the condition of the femoral ring.

Sometimes the inguinal ring is so widened, that the finger passed into it feels the iliac artery beating on its external side, the relaxed Fallopian ligament allowing it also to reach the pubis ; so that we have some of the characters of the femoral ring present. But the femoral ring never acquires this size, and, on exploring the inner side, we arrive directly at the spine of the pubis, while, at quite the external extremity, the Fallopian ligament, relaxed as it may be, resists the finger, and prevents its reaching the pubis.

So much for herniæ which quit either of the canals ; but other difficulties arise from interstitial herniæ. A tumour is observed towards the middle of the bend of the groin, but rather nearer the pubis. It is deep-seated and ill-circumscribed, projects when the patient coughs, but comes out or goes in with such rapidity, that its course cannot be followed. The inguinal canal is free, but the hernia yet seems to lie in its direction. If we try to follow the course of the Fallopian ligament, it is flaccid and felt with difficulty, and seems to be situated at about the middle of the tumour, at the level of which it offers no appreciable resistance. Lastly, if we draw a straight line from the superior iliac spine to that of the pubis, the tumour is found in part or entirely below this. In many cases an exploration of the femoral ring settles the question as to which of the rings the hernia issues from ; for if, on the patient's coughing, a sharp impulse is felt by the finger placed over this, without any external swelling being produced, it is a femoral hernia ; while, if the finger feels no such impulse, and a hernia appears above, it is inguinal. But we sometimes observe, especially in women whose abdominal parietes have become much distended from childbearing, an inguinal interstitial hernia, that so depresses the Fallopian ligament as to transmit an impulse to the finger placed below it ; while, on the other hand, a femoral hernia sometimes so raises it, as to produce a sensible projection above when we close the femoral aperture. In such a case, we place the thumb across the inguinal canal, so as absolutely to close the internal inguinal ring, and leave the femoral ring quite free. The patient coughs, and if the hernia is inguinal, nothing can escape, and the index-finger placed below the femoral ring receives no impulse; but if the hernia is femoral, the finger is pushed back by the advancing tumour.

The Influence of Sex in the production of Femoral Hernia. After adverting to the statements of Morgagni, Sandifort, Scarpa, and others, of the almost complete exemption of the male sex from femoral hernia, M. Malgaigne observes that, however seldom such cases may present themselves in small hospitals, there is no lack of them in the hospitals and dissecting-rooms of Paris. J. Cloquet found that, of 258 hernial tumours situated in the groin in men, 203 were inguinal and 55 crural, i. e. 1 to 4; but as no other observer has seen this proportion, accident may have led to its production in this series of cases. In regard to M. Malgaigne's own experience, he saw, in October and November, 1835, at the Bureau Central, 330 male subjects with hernia of the groin, and of these only 14 had femoral hernia, and 9 of these even had, at the same time, inguinal hernia. Counting the *herniæ* instead of the subjects, there were 515 inguinal to 16 femoral (about 1-35th). During the five years he remained at the Bureau Central, the proportion continued much the same, or rather less. As, owing to the small size of femoral hernia, many persons affected by it might take it for something else, and therefore not apply at the Bureau for a truss, M. Malgaigne instituted an examination at Bicêtre, and there he found 14 femoral herniæ to 90 inguinal (1-6th). This examination was continued by M. Roustan, who found, in 1043 hernia cases, 953 inguinal, 22 femoral, and 22 both femoral and inguinal. Counting the herniæ, there were *1335* inguinal to 65 femoral (1-20th). It is to be observed that the great bulk of these persons were above 40 years of age; and M. Malgaigne, from his general observation at different ages, believes the proportion to be 4 or 5 per cent.

The fact of the greater liability of *women* to femoral hernia is incontestable; but M. Malgaigne has long opposed the statement that, even in *women*, *more femoral than inguinal herniæ exist.* During his first investigation of the subject in 1835, he found that, of 62 women, 53 had inguinal and 8 femoral hernia; and although this enormous disproportion has never been reproduced, yet, with the most scrupulous care in the diagnosis, he has never found the number of femoral *equalling* those of inguinal herniæ; and several of his colleagues at the Bureau Central, induced by him to reinvestigate the subject, have arrived at similar conclusions. In *May* and June, 1840, 57 women were examined at the Bureau, and of these 32 had inguinal, 22 femoral, and 3 both femoral and inguinal herniæ. Counting the herniæ, there were 47 inguinal to 32 crural. In 1837, MM. Nivet and Manec stated that, of 116 herniæ of the groin occurring among the old women at the Salpêtrière, 67 were femoral, 40 inguinal, and 9 of doubtful nature. M. Malgaigne, surprised at this statement, induced M. Manec, in 1840, to undertake, with him, a careful reinvestigation. During this, 93 women were found with herniæ of the groin, and these were most carefully and repeatedly examined, with the result of showing *that 54* had inguinal, 35 femoral, and 4 both inguinal and femoral herniæ. The general result of his observations leads him to believe that a third or a fourth more inguinal than femoral herniæ are met with in women. As illustrative of the fallacy *of relying* upon small numbers, he says that, during his first examination with M. Manec, 18 women were presented, 10 having single or double femoral hernia, 4 inguinal, and 3 femoral and inguinal. At the second visit, 4 women were seen, in *all* of whom the herniæ were inguinal. In counting the herniæ, the first visit furnished 14 femoral and 9 inguinal; but the second visit brought them to an equality.

Influence of Age. Femoral hernia is essentially an affection of adult life. M. Malgaigne has only seen two examples of its occurrence prior to twenty, in one of which it was said to have come on during infancy, and in the other was *produced at* eight years during pertussis. Sir A. Cooper has seen cases at the respective ages of seven, eleven, and nineteen. M. Nivet states that he has seen five such cases, but his diagnosis was probably at fault. It has been observed in the fœtus. This *circumstance* distinguishes it broadly from inguinal hernia; for, of 135 cases of this observed by M. Malgaigne in women, it occurred prior to the first year in 12, and between the first and twentieth year in 17. The age of twenty once reached, the two kinds of hernia seem to be alike influenced as regards age.

Predominance of the right side. In 313 *inguinal* hernia occurring in *men*, M. Malgaigne found that 171 appeared primarily on the right, 102 on the left, and 40 simultaneously on both sides. In *women* the predominance was slightly on the *left*. Thus, of 133, 51 occurred on the right, 60 on the left, and 22 on both sides. J. Cloquet also found 23 on the left to 19 on the right; but he and M. Malgaigne are the only observers who have arrived at this result. In *femoral* hernia the *right* side predominates. Thus, in 67 women, 36 had it on the right side, 25 on the left, and 6 on both sides.

Secondary Hernia M. Malgaigne claims the merit of having first pointed out the singular predisposition which *inguinal* hernia, at least in men, exerts in the production of hernia of the opposite side. Thus, in 274 cases of primary hernia, secondary hernia had occurred in 144 at the time of examination; and in two thirds of these the second hernia had become spontaneously developed without the person being able to assign any cause. As women resist the original production of hernia more than men, so are they less liable to its secondary formation. Of 114 persons suffering from primary inguinal hernia, in 26 only were secondary herniæ observed; and of these the lesser number had formed spontaneously. Of 12 men suffering from primary *femoral* hernia, in 6 no secondary hernia had yet become induced after from ten to fifteen years. In 3 of the other 6, crural hernia on the other side had followed, and in the other 3 inguinal hernia. In *women*, 61 primary crural herniæ had been followed by 9 secondary crural, and 3 secondary inguinal herniæ.—*Revue Médico-Chirurgicale*, tom. vi, pp. 90, 208-18.

On Phlebitis. By Dr. Novellis.

Dr. Novellis states that this disease has been very frequently observed by him in the military hospital at Alessandria; and indeed it so frequently follows venesection, as to lead the patients to manifest great reluctance to undergo this operation. He thinks the following circumstances he has observed while studying it there deserving of record.

1. It is most frequently observed in those patients who are placed in dark or damp abodes, humidity especially seeming to be a frequent cause of its production.
2. It appears especially when variola is prevalent in the hospital. Not, however, that it affects the variolous patients; but while variola appears, for example, in one ward, patients suffering from inflammatory diseases in the others are more liable to phlebitis, such liability diminishing again when the variola has disappeared.
3. On the other hand, typhus is never found prevalent when phlebitis is; an antagonism seeming to exist between the two.—*Omedei Annali*, vol. cxxiv, p. 206.

On Glaucoma. By Dr. Fario.

There are a variety of producing causes of this affection, among which the author thinks rheumatism affecting the orbit a chief one. In other cases, the brain, or the eye alone, suffers from vascular disturbance. Dr. Fario regards the opinion which places the seat of the affection in the crystalline lens or its capsule, or in the vitreous humour, to be erroneous. He believes it to be entirely an affection of the retina and the choroid, the tissues of which become intimately modified. Under such modification, the choroid becomes of a purple or violet colour, and the retina of a yellow. The white rays of light entering the eye are reflected from its depth purple and yellow by the changed membranes, and falling concentrated and mingled on the vitreous humour produce the green colour characteristic of the disease.

The disease, generally slow in its progress, is sometimes extremely rapid, a difference Dr. Fario believes to be due to its chiefly affecting the venous capillaries of the choroid in the first case, and the arterial capillaries of the retina in the second. He adds, that in his practice at Venice he has treated a vast number of cases; this disease, in common with other affections of the vascular system, being very prevalent there; but that after trying every therapeutical agent, he cannot point to a single cure. If, by the use of venesection, digitalis, iodine frictions, calomel, and especially ergot of rye, its progress can be somewhat retarded, that is all that is attainable, the form which the author regards as the venous proving the most intractable of the two.—*Omedei Annali*, vol. cxxiv, p. 313.

Extracting Foreign Bodies from the Nostrils. By DR. HOMANS.

DR. HOMANS for many years has practised the following: Closing the nostril which is free, he blows forcibly with his own mouth into the mouth of the patient, and the result is the discharge of the body. He states that, in no case where such substance completely obstructed the passage, as beans, peas, grains of corn, &c., had this method failed of success; but when the substance introduced was so shaped as not entirely to obstruct the passage, as a button, the air blown in might pass through, and not remove the body.—*American Journal of Med. Sciences*, N. S., No. 37, p. 73.

Case of Abscess of the Brain. Incision made into the Lateral Ventricle.
By DR. DETMOLD.

THE subject of this case, æt. 40, received a fracture of his skull from some machinery, 14th July 1849, and on the 9th August, a considerable piece of the os frontis, which was found loosened in the wound, was removed, with great relief to the patient, who after a while got about. On the 13th September, about five weeks after the removal of the bone, Dr. Detmold was called to him again, he having the day before become drowsy, and his head aching. By the time he saw him, this had passed into complete stupor, with stertorous breathing, immoveable pupils, and a slow pulse. In the place of the wound there was now a deep, adhering cicatrix, through which the pulsation of the brain was plainly felt. An abscess was diagnosticated, and an incision carried around the cicatrix, whence others diverged, in search of additional loose bone. Three pieces of the os frontis were found and removed, leaving an opening in the bone five inches square. Finding that no relief resulted, the cicatrix, with the portion of the dura-mater to which it was attached, were dissected off, so as to expose in that part the somewhat thickened pia-mater. Feeling sure that an abscess was the cause of the mischief, and believing he had felt its fluctuation prior to the division of the cicatrix, Dr. Detmold made an incision into the brain, one inch long and half an inch in depth, and a thick stream of healthy pus flowed out, with an almost instantaneous restoration of the patient's sensibility, the pulse too at once rising from 40 to 60. His progress continued so satisfactory that high hopes were entertained. A hernia cerebri protruded where the dura-mater had been removed, but was kept down by pressure. The wound began to cicatrize, and on the eighteenth day after the abscess was opened, he left his bed; an aperture, allowing a probe to pass into a cavity in the anterior lobe of the brain; still remaining.

About three weeks after this operation, although he felt himself very well, he began to lose his *memory*, and, in a few days after, he could recollect neither his own, his wife's, or his children's names. He made great efforts to recollect, and could sometimes succeed by being assisted with the commencement of the word. He lost the power of reading and writing in succession, though on some days he could read a few words. So he continued till the 18th October, when the parts situated over the removed bone, and which had began to sink in, became tumefied, red, and hot, and by the 22d some degree of stupor had reappeared. An incision was now again made through the integuments into the brain, to the depth of an inch and a quarter, without any pus resulting, but with the production of considerable relief to the symptoms. On passing in a probe, the author was astonished to find it penetrating four and a half inches into the brain, towards the lateral sinus (ventricle?) into which the abscess had evidently opened. He continued to amend, but utter loss of memory now occurred, and on the 27th, he became speechless though sensible, and an inflammatory affection of the abdomen supervening, his case was considered hopeless. It was thought, however, desirable to explore for more pus, and on the 28th (seven weeks after the first) another incision was made, an inch and a half in depth, into the brain, and a probe passed in nearly five inches. Shortly after, matter flowed freely through the wound, but he died the same evening.

On examining the head, the edges of the fractured bones were found rounded off by absorption, the dura-mater congested, and the brain vascular. Both ventricles contained a large quantity of thin pus, and at the anterior corner of the roof of the left one the wound produced by the incision of the morning was found.—*American Journal of Medical Sciences*, N. S., No. 37, pp. 88-93.

A Remarkable Case of Relapses in Cancer.

A Women named Valens, æt. 42, entered the Hôtel Dieu under M. Jobert October 30, 1849. She was married at 19, and had been pregnant eight times, and her menstruation is, and has always been normal. Her health was quite good until 1834, when she observed a small tumour under the right superciliary ridge, and as it gave her severe pain, it was (in August) removed, when only the size of a grape seed. The wound readily cicatrized. Between November 1834, and April 1835, a similar tumour was developed in the same spot, causing severe shooting pains, as well as throbbing of the eye. M. Cloquet removed it, as well as the lachrymal gland, into which the prolongations of the morbid tissue extended. At the end of a month all healed, and for two years nothing else exhibited itself. She was in perfect health, when three little tumours were observed in precisely the same spot, and now implicating the periosteum; the pains, too, having become much more intense than those accompanying the others. Morever, the lachrymal gland being removed, there was no secretion of tears, which occasioned a very severe burning pain. The eye was very much swelled. She bore with her sufferings for three years, and only entered La Pitié, under Lisfranc, in 1842. He removed the tissues proceeding from the old cicatrices, and the three little tumours, another that could be felt in the larger angle of the eye, one deeply imbedded under the superciliary arch, one covered by the bone at the external angle, and still another, adhering to the optic nerve. After this operation, she found her sight much impaired, and her vision double. The wound healed in twenty-six days, and all pain departed. The periosteum, and a portion of the osseous substance to which the tumours adhered, were removed.

She continued quite well for a year, when another little tumour appeared just above the caruncula lachrymalis, and was accompanied with the same pains as heretofore. A pupil of M. Lisfranc's removed the tumour, and the patient had two more years of rest. At the end of that period, however, the eye became again very painful, the seat of suffering being referred to the back part of the orbit, while a new tumour appeared at the place whence the last had been removed. Four years she bore her suffering; when, the pain having at last become quite insupportable, and the power of distinguishing objects by the eye lost, she placed herself under M. Jobert in April 1849. He extirpated the entire eye, the little tumour being removed with the conjunctiva. Cicatrization readily took place, and all pain ceased. Three months after, however, the unfortunate woman applied on accouut of another tumour extending under the obitar surface of the lower eyelid. This, too, was extirpated in November 1849, and the wound perfectly cicatrized.

If the resources of art have not been, in this curious case, as complete as might be desired, it cannot be doubted that they have procured for the patient several years of tolerable comfort, and have prolonged her life.—*Gazette des Hôpitaux*, 1849, No. 143.

On the Treatment of apparent Death from Chloroform. By MM. Ricord and Escallier.

M. Ricord relates two cases, in which anæsthesia was soon produced by inhalation from a sponge having large vacuolæ, and in which death seemed imminent, the pulse and action of the heart, ceasing, and the countenance assuming a cadaveric appearance. He restored both patients by repeatedi nsufflations, made by the direct application of his mouth to theirs.—*Bulletin de Thérapeutique*, tom. xxxvii, p. 396.

Dr. Escallier states that, like M. Ricord, he has met with two cases in which, although all the precautions usually recommended were taken in the administration of the chloroform, death seemed to be imminent, in spite, in the one case, of aspersion with cold water, currents of cold air, and the titillation of the nostrils, &c. In both cases the chloroform had been administered for the reduction of a hernia, which was accomplished under its influence; and in both, the patients had found some difficulty in breathing it, so as to require to be held down. In the first case, finding all other means useless, M. Escallier passed two fingers deep into the throat, to the orific of the larynx. This excited an expiratory movement, which was the signal of the reanimation that followed. In the second case, all the bystanders, as well as M. Escallier, believed the patient, who had been under the influence for five minutes, to be absolutely dead; so that without trying other means, he passed two fingers into the throat as deeply as possible; where he kept them at least a minute before an expiratory effort was produced, after which the patient was quickly restored.—*L'Union Médicale*, 1849, No. 143.

On Dressing Wounds and Ulcers with Charcoal. By Dr. Newmann.

In 1846 Dr. Newmann recommended the employment of charcoal as a substitute for charpie, plasters, ointments, &c.; and since that time numerous cases ("thousand" in all he says) have confirmed him in the conclusion that the great majority of open surfaces are far more rapidly healed by this means than by any other.

One great object of applications of any sort is the exclusion of the atmospheric air, which coming in contact with the pus decomposes it. The capillary action which takes place between the granules of the charcoal prevents a great accumulation of the pus on the surface of the wound, and spreads it widely, so that it dries and fills up the interstices of the powder, and prevents the access of air to the wounded surface. Charpie and lint also exert capillary action, but not to the same extent, as they cannot penetrate so closely among the irregularities and depressions of the wound. Besides this effect, due to its porosity, charcoal exerts a most favorable influence by its power over putrefaction, and hence its great use in gangrenous wounds, and in fact in all open surfaces when changes in the pus are to be feared. In corroboration of this general eulogium, the authot selects certain special cases, which usually offer some difficulty in their management.

Thus every one knows what a troublesome affection is produced by an *ingrowing nail*, and the painful character of the remedies employed; Dr. Newmann declares he is enabled to heal the obstinate ulcer thus produced in as many days as these various means require months. Having separated the soft parts from the nail, so as to expose the ulcer in its entire depth, he deposits the charcoal freely therein, having combined with it a little acetate of lead, or oxide of zinc, leaving the entire nail covered with this, and binding a piece of lint over it, the patient wearing a wide shoe and keeping quiet. In twenty-four hours the toe is bathed in tepid water, and new charcoal is added to the wound, without disturbing any of that previously applied, which may be firmly adherent. A week or a fortnight of such treatment suffices to heal the wound. *Sore nipples* constitute one of the minor ailments that cause great suffering and trouble in healing. In this case he usually employs lycopodium mixed with a little oxide of zinc (for a fine powder, not charcoal alone, though usually the most preferable one, constitutes the basis of treatment,) with which the part is well powdered each time the child has sucked. This penetrates into the fissures of the nipple, and however strongly the child may suck, some of it remains in contact. The wound quickly heals. *Discharges from the ear*, dependent upon ulceration of the meatus, are healed by charcoal in three or four weeks, even if the ulcerations were considerable. The meatus is syringed out every day, and the charcoal then freely introduced. *Fissure of the rectum* is one of the most painful and distressing diseases that come under the cognizance of the surgeon. The charcoal should be applied after every stool, and often in the day besides, care being taken to have it effectually and freely brought into contact with the fissured surface. Dr. Newman, after expiating upon the difficulty of treating the suppurating wounds supervening on *extensive burns*, so as to prevent deforming cicatrices, declares that charcoal obviates much of the inconvenience, by keeping the surface of the wound dry, even when the suppuration is abundant; and that contraction does not follow, or it is much less considerable than after any other mode of treatment. If the burn is on the back, the charcoal may be freely strewed over the bed. Since he has employed the same means in *gun-shot wounds*, he has met with much less trismus and tetanus, and has been surpassed at the rapidity of the cure. In the treatment of *ulcers of the legs*, even without insisting upon the recumbent posture, he has also been very successful. In a few days the surface becomes cleaned, and a good crop of granulations developed, while the callous edges are levelled. To diminish the circumference of the sore more rapidly, strips of adhesive plaster are now applied above and below it, and across its middle, the intervals between the strips being strewed with charcoal, covered with ointment spread on lint, and bandaged. This dressing is renewed every two or three days. In this way ulcers, which have continued open for years, have been healed in six or eight weeks, the patients still taking moderate exercise.

The cheapness of the substance, and the ease with which it may be prepared, under a variety of circumstances when ordinary dressings are not obtainable, should recommend it strongly, Dr. Newmann observes, to hospital and military auth orities —*Casper's Wochenschrift*, 1849, Nos. 42 and 43.

MIDWIFERY, &c.

On Hemorrhage from the Umbilicus. By Dr. Bowditch.

Dr. Bowditch relates two examples of this fatal occurrence, which occurred in infants of the same mother, herself a healthy young woman. The first child was a female, and the cord fell off the third day, without being followed by any unusual appearances until the *fourteenth*, when an oozing of blood commenced. After styptics, compression, and other means had been tried in vain, needles were passed through the skin, to which ligatures were applied as in hare-lip (this plan, we may observe, was adopted in a case by M. P. Dubois, without success; see 'Gaz. Med.,' 1848, p. 101), so as to inclose a circle of integument. This seemed at first quite successful, and the child to be doing well; but on the eighteenth day bleeding returned. On the nineteenth it had several bloody stools, which, as well as the umbilical bleeding, continued on the twentieth day, when it died.

After having had two other children, who manifested no tendency to hemorrhage, the fourth, a male, exhibited this on the *tenth* day, the cord having fallen off on the fifth. Some ecchymosed spots soon after appeared on the body; and the hemorrhage, in spite of all means, amongst which the actual cautery was employed, continued until death on the fourteenth day. In this case there was some jaundice during life, and a very diseased state of the liver found after death

Dr. Bowditch has taken much pains to search for similar cases in periodicals and standard works on the diseases of children, but with very ill success, for little has been published on the subject, and that little of a very unsatisfactory character. He supplies a short analytical reference to twelve cases which occurred in Boston; and from the imperfect particulars given, we glean that the average age at which the hemorrhage came on was seven days and three quarters, the earliest being the third, and the last the eighteenth; seven days being, too, the longest period that life continued after the hemorrhage began. In most cases the bleeding was temporarily stopped by treatment, and in many there were bloody dejections. Jaundice was a very common accompaniment (as noticed by Dr. Campbell, 'Northern Journal of Med.,' 1844); and the usual termination of life was by prostration. Dr. Radford, in the 'Ed. Med. and Surg. Journ.,' 1832, makes two divisons of this hemorrhage; one in which it results from bad tying, or disease of the funis, such as an ossified or varicose state of the vessels; and the other in which it is due to an incomplete closure of the vessels. The only recourse here is cutting down and tying the vessels. Some authors have advised internal remedies in umbilical hemorrhage, on account of the fluidity of the blood observed in these cases; and Dr. Bowditch tried grain doses of sulphate of soda ('Brit. and For. Med. Rev.,' ix, p. 247), but without avail. He refers to the possibility of other cases depending upon the hemorrhagic tendency analogous to that seen in adults, and which is sometimes hereditary; and we think that this is the rational explanation of his own and the great majority of other recorded cases, and explains the great difficulty of cure. Besides the references above given, we may subjoin the following: 'Med. Gazette,' vol. xliii, p. 423; 'Bulletin de Therapeutique,' vol. xxxvii, p. 313; 'Med. Times,' vol. xvi, p. 635; 'Revue Médicale,' Sept. 1847, p. 87.—*American Journal of Med. Sciences*, N. S., No. 37, pp. 63-71.

Case of a Negro Woman who gave birth to Twins of different Colours.

By Dr. Carter, Virignia.

"The negro woman Winny is 23 years old, of good constitution, and as black as the ace of spades. She has borne three children previously to this labour. She says, that in April 1848 she had connexion with a white man, and on the following day with a black one. About a week or ten days elapsed, when the catamenia failed to appear. In February 1849, about the middle of the month, she was delivered of twins, the dark coloured child being first delivered, and afrerwards the mulatto. The children are robust; one of them is a mulatto, and the other as dark as negro children generally are. The woman is certain they were begotten by different fathers, and this is the conclusion to which all have come who have seen the children."—*Philadelphia Medical Examiner*, N. S., vol. v. p. 523.

On a Funis of Remarkable Length. By Dr. Neugebauer.

After a natural labour, the funis was found coiled round the child's body six times. It was of normal structure, but very thin, and is supposed by the author to be the longest on record. It measured 67¾ Scheleswich inches (1.653 metre). Busch, in 2077 births, found only four examples of the funis measuring from 40 to 46 inches. Osiander mentions one of 50 inches as a most rare occurrence. Siebold indicates one of 52, Michaelis one of 53, Baudelocque one of 57; one of this last length having also been observed once in 12,329 births, at the Prague Lying-In-Institution. The longest, prior to the present one, was indicated as measuring 60 inches by Michaelis.—*Casper's Wochenschrift*, 1849, No. 41.

On the Prophylatic Treatment of Habitual Disposition to Abortion.

By Dr. Metsch.

When the disposition to abortion is dependent upon a diminished vitality of the uterine system or functional weakness of its nutritive vessels, Dr. Metsch says that medicines of a stimulant and strengthening description, acting powerfully upon the circulation of the organ, are indicated, and of all such substances *savine* is that which is most to be relied upon for this end. Of course so powerful a drug requires skillful selection of appropriate cases for its employment, or it may give rise to hyperæmia of the pelvic and abdominal organs, inducing hemorrhage, inflammation, abortion, or death itself. Local or general plethora, or serious disease of any part contraindicate its use. An infusion is made by adding from two to four drachms to six ounces of boiling water, a spoonful being given morning and afternoon during the intervals between the menstrual periods. On several occasions, before commencing with it, catarrhal or gastric disturbances have to be allayed, as also irritation dependent upon congestion, rheumatism, or disorder of the nervous system. Small general or local bleedings, emetics, aperients, tepid baths, or friction of the surface are required in different cases. So too regulation of diet, abstinence from sexual excitement, rest in the horizontal position as long as pain is present, are then indicated.

If the disposition to abortion depends upon an augmented irritability and contractility, (a condition not always opposed to the first named), the savine does not alone suffice, but a medicine is required that exerts a special effect in regularizing uterine irritability, the *ergot of rye*, which should be added to the savine infusion in the proportion of one to two, when former miscarriages were induced by the primary contraction of the womb without preliminary hemorrhage. Another modification in the prophylaxis is to be made when former abortions were attended with great urinary irritation, in which case six drops of *tr. lyttæ* should be added to each dose. When, prior to former abortions, there was great disturbance of the digestive organs, very small doses of *ipecac.* may be alternated with the above.

The savine has also been found useful in various chronic diseases of the female genital organs, connected with vascular and secretory torpor, especially in passive hemorrhages and leucorrhœa. In the same way it is of good service, conjoined with mechanical means, in treating prolapsus uteri consequent on frequent or difficult labours and abortions.—*Zeitschrift für Geburtkunde*, Band xxvi, pp. 339, 355.

[Dr. Metsch speaks with great confidence of the great utility of savine, and relates some cases in proof; but it is obvious that such powerful medicines as savine and ergot require great discrimination in selecting appropriate cases. In these annoying cases of repeated miscarriage, occurring in women of weak and irritable fibre, and unaccompanied by vascular congestion, we have derived remarkable benefit from the administration of *assafœtida* as soon as a new pregnancy has manifested itself, and in the manner recommended by Dr. Lafierla of Malta.] (Vide Med. Chir. Rev., new series, vol. vi, p. 266.

Remarkable Case of Retention of Urine after Delivery. By M. Malgaigne.

M. Malgaigne was called to a woman on the fourth day after her delivery, in consequence of the various attempts at relieving retention of urine by catheterism having failed. The abdomen was as much swollen as prior to delivery, and the woman was in a state of dreadful suffering. On inquiring, M. Malgaigne learned that both she and one of her daughters urinated in a different manner from other females, the jet passing upwards and in front; and he concluded that the urethra mounted higher up in front of the pubis than usual, and that this bone had prevented the passage of the catheter. By directing the instrument first from above downwards, then turning it, and pushing it upwards and backwards, he easily reached the bladder. He was perfectly astonished at the enormous quantity of urine that came away, this far exceeding anything he had ever witnessed before. By weight it amounted to 3300 *grammes*, and by measure to three *litres*, that is, between eight and nine apothecaries' pounds, or between five and six imperial pints.—*Revue Médico-Chirurgicale*, tom. vi, p. 374.

Discussion at the French Academy of Medicine upon Engorgements of the Uterus.

The presentation of a Report, in October, by M. Hervez de Chégoin, upon a Memoir upon "Deviations and Engorgements of the Uterus," forwarded to the Academy by M. Baud, has given rise to a more animated and prolonged discussion than has recently occurred in that body. This has been remarkable, not only from the great diversity of opinion prevailing among equally high authorities, and that on matters apparently capable of physical demonstration, but also from having brought into the field some eminent men (as Paul Dubois, Jobert, Recamier) who very rarely take part in the discussions at the Academy. To our view the discussion is also of importance, as promulgating a recantation of a dangerous medical heresy. How short is the period since, when under the influence of Lisfranc's views, half the women of Paris were condemned to absolute recumbency, debilitating depletion and regimen, and in many instances to cruel operations, under the belief they were suffering from inflammatory affections of the uterus, tending in numbers of cases to cancerous degeneration! Whatever the difference of opinions offered in the present discussion, however opposite these may be, all now unite in repudiating as untrue in fact, and dangerous in practice, the doctrines received so short a time since with such confidence, and acted upon with such dangerous vigour. In this country they were received with little favour; and the remembrance of their extravagance, and of their discomfiture in their natal soil, may account for the distrust which is now felt at the attempts recently made to instal ulceration and other affections of the cervix uteri as the dominant cause of female ailments.

Of a discussion that has occupied so many sittings, we can only profess to furnish an outline, reserving all appreciation and criticisms of the opinions advanced for future consideration in another department of the journal, as opportunity may offer.

M. Baud regards the diseases of the uterus from an exactly opposite point of view to that taken by Lisfranc, believing that both they and the deviations of the organ from its normal position are for the most part due to a disordered state of the general economy, in which the uterus participates, and on the relief of which these secondary and passive effects disappear. He concludes: 1. That all treatment which ameliorates the general condition is a step towards the cure. 2. Treatment ameliorating the local condition, to the detriment of the general, aggravates the disease. 3. Treatment should be adopted under the idea that the uterus is in a passive and mechanical condition. The remedies he recommends to carry out these views are of a tonic and corroborant kind, whether locally applied or given internally.

M. Hervez de Chégoin, reporting on this paper, while regarding the opinions advanced in it as too exclusive, yet states his belief that the local uterine affections are most aptly treated by general means, and that the *engorgements* observed in displacements of the uterus are often only the results of these, and disappear when the latter have been rectified. While he blames Lisfranc's indiscriminate treatment, he cannot admit that inflammatory *engorgements* requiring leeches may not sometimes exist; while, moreover, local *engorgements* may occur quite independently of a disorder of the health, the woman being otherwise quite well. In passive *engorgement*, too, dependent upon displacement, all internal treatment is useless without mechanical aid, which indeed M. Baud admits is then also sometimes required. M. Baud also attributes leucorrhœa to general debility, calling for tonics and astringents; but while it may be admitted that a tonic treatment best accords in general, there are other cases in which the mildest procedures are alone admissible. Every one has seen examples of obstinate yellow discharges, with a tendency to constriction of the vagina, and the production of painful fissures; which, though indolent as long as no physical cause of irritation exists, are exasperated by all tonic and astringent applications, and yield only to the mildest, of which distilled water forms one of the best. In other cases, in which there is an altered, thickened, or granular state of the lining membrane, neither tonics, nor emollients, nor any internal treatment, are of avail, until the condition of this be changed by special applications. Leucorrhea, too, resulting from uterine neuralgia, calls also for its special treatment.

M. Gibert: While practitioners of the olden times regarded the uterus as a kind of critical and depuratory emunctory, whose lesions depended in general upon a general diathesis, those of more modern times have been too much accustomed to make it the point of departure for the most varied and most serious general accidents, counselling for what were most trifling ailments the most active procedures, and leading those who had little the matter with them to believe themselves dangerously ill. Such alarming statements, in fact, were the means of generating in those to whom they were addressed a series of general symptoms, pains, and disturbances of function, attributed to the disease, but which disappeared when these persons were subjected to a more rational treatment, and their minds tranquillized. A large hospital practice, in which constant examinations of the organs have been made, enables M. Gibert to assert: 1. That the alterations in colour, form, volume, texture, and situation of the neck of the uterus, signalised by so many surgeons as the point of departure and origin of such varied morbid phenomena, may be discovered without their having given rise to any of the ill consequences so frequently attributed to them; and, 2, the various symptoms, signalized by Lisfranc as the necessary accompaniments of engorgement, may occur without any sensible alteration in the cervix being discernible. Believing, however, in the existence of such a disease as *engorgement* of the cervix, he regards it as almost always an effect of a lymphatic diathesis, and one of the consequences of delivery.

M. Velpeau excited numerous replies by maintaining that *engorgement* of the uterus, as an affection independent of inflammation, had no existence; and although he limited this exclusion afterwards to the body of the uterus, yet even as regards the cervix, he maintained it is comparatively a rare affection, and one for which *inflexion* of the organ are frequently mistaken, these being of far more frequent occurrence than is generally believed. Lisfranc maintained that inflexions were only the consequences of engorgements; but M. Velpeau declared that, when hypertrophy exists, it is the consequence of the inflexion, and it is indeed always found on the side of such inflexion. Pessaries have been much misused; of service in simple deviation, they are of no service when the womb is inflected, and the abdominal bandage is then the only thing M. Velpeau has found act as a palliative. M. Velpeau believes that neither author nor reporter attaches a sufficient importance to local remedies, although he agrees with them as to the importance of general treatment in certain cases. The white discharges from the cervix result either from carcinomatous diseases, or from the presence of granulations or vegetations in the parts, which is indeed the commonest of causes of uterine discharges, and can never be efficiently treated without local means, of which the acid nitrate of mercury is by far the best.

M. Malgaigne believes, with M. Velpeau, that many of the uterine affections are local, and call for local remedies, but he thinks that the frequency of ulceration has been exaggerated. The reporter declares *retroversion* a much more frequent deviation than *anteversion;* but M. Malgaigne, while engaged at the Bureau in the application of pessaries, could never meet a case of retroversion, though examples of anteversion were frequent; but while this discussion was going on, no less than three examples of the former came under his notice, because, as M. Dubois declared, he had proceeded with the view of searching for them. As a local application in the engorged cervix uteri, he prefers the actual cautery.

M. Moreau considers M. Velpeau's assertions far too general; for, because ignorant persons may mistake displacements for engorgement, it does not follow this may not exist. As M. Velpeau stated cadaveric proofs were wanting, he would cite an example on the living; for, a uterus having been removed on supposition of carcinoma, its body was found simply engorged. *Engorgement* of the cervix is of far more frequent occurrence. Contrary to M. Malgaigne, he believes that anteversion is very rare, and retroversion of the non-pregnant uterus is far more frequent.

M. Jobert considers that *engorgement* of the uterus may exist either as symptomatic of other affections, or idiopathically, and in this last case demanding loca applications, as its principal, if not as its sole treatment; and it is here that he has found the actual cautery so valuable. Deviations of the uterus may be either congenital or acquired. In the first, the uterus undergoes a change in its proper texture, an atrophy or imperfection of development occurring in the direction of its curve. Such changes in form may produce no accidents until puberty, and none at all unless menstruation is impeded by them. These congenital deviations are irremediable by art; and while those arising accidentally may be remedied, they cannot be so by local means alone, dependent as they are upon an altered condition of the tissues, which must be restored to their normal state, mechanical means being used only as auxiliaries.

M. Robert entered into a long dissertation, to show that the symptoms attributed to *engorgement* were really due to a granular state of the lining membrane of the cavity of the uterus, long since pointed out by Recamier, and that on scraping these away (examined microscopically, they appear to be mere expansions of the proper texture of the membrane), and afterwards applying caustic, the symptoms soon yield.

M. Huguier, in answer to M. Velpeau's challenge to exhibit *engorgement* in the dead body, observed that, as in *engorgements* of other tissues, these rapidly disappeared after death, and that he had repeatedly measured the cervix before and soon after death, and found it diminished afterwards by more than a third. Nevertheless, he exhibited preparations to the Academy, which were generally acknowledged to demonstrate the engorgement in question. Of 2527 cases of which he has kept notes, at the Lourcine and Beaujon, he finds there were 131 well-marked examples of *engorgement;* and of these, in 106 it affected the cervix alone, 8 the body and cervix, 13 the body alone, and 4 remained unindicated.

M. Roux observed that *engorgement* may be affirmed from analogy and pathological anatomy. Thus, when we see the orifices of the mucous canals, the amygdalæ, spleen, liver, &c., liable to become engorged, it would be strange if an organ like the uterus, having abundance of vessels, and a periodical flux, and fulfilling functions often giving rise to irritation, should be exempt. Twice M. Roux had been induced to extirpate the uterus; in the one case cancer was far advanced, and hoping in the other to remove the organ in an earlier stage, it was found quite unaffected with organic disease, being simply engorged. A member inquired "what became of the patient." M. Roux's solemn reply "obiit," coupled with the assurance that no consideration would induce him to undertake again this operation, ought to have conveyed a wholesome lesson to his younger auditors.

M. Hervez de Chégoin observed, that *anteversions* are of more frequent occurrence than *retroversions*, because the latter require in general a peculiar excavation of the sacrum for their production; but they give rise to less inconvenience than retroversions, being but an exaggeration of the natural position of the womb.

M. Amussat believes that, while Lisfranc much exaggerated the frequency of *engorgement*, it would be a great error to deny its existence, or attribute it entirely to the operation of deviations, as also to refuse to admit that the affections of the uterus may exert a great effect on the system at large. In treating *engorgement*, if general measures are found insufficient, we must also resort to local ones, and not wait too long before we do so. Cauterization, if perseveringly used, is an excellent means, and even may be of avail in *cancerous* disease; for this is more amenable here than in the breast, and less liable to relapse. He prefers the solidified potass and lime to the actual cautery, but recommends it to be freely applied. He believes that both anteversion and retroversion occur more frequently than is allowed, and the one perhaps as often as the other, although retroversion, by its greater importance, has attracted more attention. He has succeeded in curing some cases by cauterizing the posterior surface of the cervix, and getting this to adhere to the opposite wall of the vagina.

M. Recamier, the originator of the modern pathology of uterine disease, delivered a discourse tending to demonstrate the reality of uterine engorgement, which he regarded of an erectile nature, exactly analogous to erectile engorgements about the rectum.

M. Paul Dubois delivered a most able address upon the subject, reviewing the opinions of the former speakers, and communicating his own in a most lucid manner.

The length of his address, and the importance of the numerous facts and observations it contains, oblige us to defer our analysis of it until our next number.—Vide *Gazette Médicale*, 1849, Nos. 41, 42, 43, 44, 45, 46, 47; 1850, Nos. 3, 4, and 5.

Case of Extra-and Intra-Uterine Pregnancy existing simultaneously.

By Dr. Craghead.

The case occurred in the person of a negro woman, æt. 35, strong, and of prior good health. The author was called to her suddenly (18th April) when *in extremis*, having treated her antiphlogistically some days before for a painful abdominal tumour, which he considered ovarian. He found her exhibiting all the signs of exhaustion, with intense colicky pains, and fruitless efforts to evacuate the bowels and bladder. Stimuli and opiates produced some temporary reaction, and she aborted on the 19th of a well-formed three-months fœtus, but died on the 21st.

On examination, the cavity of the abdomen was found to contain large quantities of blood and serum, in consequence of the rupture of some of the vessels of the left Fallopian tube, now converted into a membranous sac, and containing a fœtus the same size as the other, and which was visible through its transparent wall.

Dr. Neill, demonstrator of anatomy, carefully examining the preparation, observes, that the cavity is undoubtedly formed by a dilatation of the Fallopian tube, as he has been able to trace the tube from the uterus to its infundibuliform expansion into the walls of the cavity, but can find nothing like a continuation of it from the external part of the sac, and nothing that can be positively considered its fimbriated extremity. This cavity contains a well-formed fœtus five inches and a half long, with a cord and well-developed placenta attached. The ovary is not much diminished in size or altered in colour. The ligament is increased in size, and very fibrous in appearance. The Fallopian tube also, on the other side, was much dilated through its entire length, and its walls much softer and less fibrous than usual.—*American Journal of Medical Sciences*, N. S., No. 37, p. 115.

On Puerperal Fever. By Dr. Gamberini.

This is an elaborate and useful monograph; but as Dr. Gamberini's reasoning upon the phenomena of the disease is based rather upon a critical consideration of what has already been published upon it, than upon additional original observations, we shall merely state the general conclusions at which the investigation has led him to arrive.

1st. *The pathological anatomy of the disease* may be thus summed up. (1.) A very frequent but not constant lesion of the peritoneum and uterine apparatus, sometimes with well-marked characters of inflammation, at others of a doubtful phlogistic type, and at others with an entire absence of these. (2.) An especial prevalence of purulent matter in the venous and lymphatico-glandular systems, but not to the exclusion of the participation of various other parts. (3.) Frequent collections of fluids in the large serous membranes, sometimes of a purulent, sometimes of a milky, appearance. (4.) Frequent secondary morbid complications of the respiratory organs. (5.) In the majority of cases (according to Bouchut and Tonnelé) the venous system has undergone great alterations. (6.) The proportion of the water of the blood is augmented; that of its globules and albumen is diminished, and that of its fibrine remains normal. (7.) There is every reason to believe that the vitiation of the blood takes place prior to the development of the fever. (8.) In some women, dying of this disease, scarcely any lesion is met with, and none sufficiently serious to account for death.

2d. *The nosòlogy and symptomatography of the disease*. (1.) There is the greatest difference of opinion as to the nature of the disease, some regarding it as a peculiar entity, and others as an ordinary disease, influenced by the puerperal condition. (2.) It was known to Hippocrates and the other physicians of antiquity under a different name, and received its present appellation from Strother, in 1716. (3.) Its definitions have been multiplied and varied according to the prevalence of different theories, the predominance of some symptom, or the supposed pathological condition. (4.) It may attack non-pregnant women, especially those who are employed in lying-in hospitals. (5.) It may be spasmodic or epidemic, and is, according to some, contagious. (6.) Many make distinctions in it, in consequence of any remarkable epiphenomenon; thus we have the inflammatory, gastric, typhoid, &c. form. (7.) A particular coincidence has been observed between puerperal fever and erysipelas. (8.) There are differential characters between this disease and metritis, or peritonitis. (9.) The inflammatory nature of this fever is very doubtful, for the uterine and peritoneal affections that accompany it so frequently are not always of a legitimate and true phlogistic character, or at least such inflammation is not cured as are others.

3d. *The etiology of the disease.* (1.) The etiology has been generally much too superficially considered. (2.) The predisposing and occasional causes generally admitted do not sufficiently explain the occurrence of the disease. (3). The importance attached to these different causes proceeds from its not having been determined what is the essence or morbid condition of puerperal fever, which has been represented under various anatomico-pathological entities. (4.) The functional and organic changes which occur in the mother's system, the relations and sanguineous commingling which take place between her and her child, the new secretions that are formed, and various other similar occurrences, are in my opinion the causes that awaken the susceptibility to the development of puerperal fever,—that is, which predispose her to it. (5). The emanations produced by an assemblage of parturient women, and a special atmospheric condition, are the occasional causes. (6.) Puerperal fever may exist sporadically, just as various other specific diseases, whose causes are involved in mystery, may exist sporadically.

4th. *The pathological conditions and essence of the disease.* (1.) Of the great variety of opinions which prevail concerning this, most are exceptionable, and not a few quite unsustainable. (2.) The effects, symptoms, and the complications, have been confounded with the cause and the essence of the disease, and in general that has been made primary which is only secondary. (3.) Puerperal fever and typhus fever are two quite distinct diseases. (4.) Though a complication of the highest import, inflammation does not constitute the essence of this disease. (5.) Puerperal fever is a totally distinct and isolated disease. (6.) Its fundamental cause exists in a disordered hæmatosis, the result of a particular sero-purulent diathesis. (7.) It cannot be placed amongst the essential fevers, and the term "fever," applied to this disease, is a very equivocal one.

5th. *Morbid complications and pathological relations of the disease.* (1.) The complications have been frequently confounded with the essence of the disease. (2.) The most frequent complications, such as metritis, peritonitis, &c., are rather the products of hyperæmia than of true inflammatory action. (3.) There is a marked difference between puerperal fever and true metro-peritonitis. (4). The epithets "inflammatory," "typhoid," "bilious," puerperal fever are unphilosophical and equivocal. (5.) Remittence, though frequently a type of puerperal fever, is no essential element, and is an equivocal expression as applied to it. (6.) Notwithstanding the frequency of the coincidents of puerperal fever and erysipelas, nothing can be concluded positively in regard to their relation. (7.) Phlegmasia alba dolens is an important epiphenomenon of puerperal fever.

6th. *On the epidemic and contagious characters of the disease.* (1.) All agree that it may prevail epidemically. (2.) Various causes, and especially changes of temperature, have been assigned as explaining the epidemicity; but these are very unsatisfactory. (3.) The influence of locality is of more importance, but does not offer a sufficient explanation. (4.) The epidemic germ exists in the puerperal state, and a special condition of the atmosphere aids, favours, and develops this. (5.) The contagiousness of the disease is at present undetermined. Reason and facts, however, favour this view.

In respect to *treatment*, the author has no new suggestion to offer. He believes that the sero-purulent diathesis should be especially combated, as being that upon which the disease primarily depends; and to this end he thinks quinine and the mineral acids the best known means, combining these with calomel as an aperient, and treating the inflammatory and other complications upon the principles of a rational empiricism.—*Bulletino delle Science Mediche*, sec. 3, tom. xv, pp. 75, 129, 273.

MATERIA MEDICA AND THERAPEUTICS.

On the Effects of the Alkaline Mineral Waters of Vichy on the Urine.

By Dr. DURAND-FARDEL.

DR. DURAND-FARDEL has, from his position of physician to the hospital at Vichy, long had opportunities of investigating the operation of the celebrated waters of that place. His object in the present paper is to correct some exaggerated and erroneous statements which have been made respecting their effect upon the urine, and their solvent power on urinary calculi. M. Petit and others have jumped to the conclusion that, because certain calculi immersed in these waters undergo solution, the same solvent power might be obtained from their ingestion rendering the urine alkaline; but M. Durand points out that this would not necessarily remedy the conditions upon which the formation of the calculi depended, and that such alkalinization of the urine is not permanent and complete enough to disintegrate calculi already formed. He carefully examined, at regular intervals, the urine of 87 patients while regularly drinking the waters. Of these, in 30 cases there was well-marked alkalinity in different degrees; in 12 a feeble alkaline state was observed, in 4 a neutral, in 6 an acid state. In 14 the urine was alternately alkaline and neutral, and in 21 alternately alkaline, neutral and acid. In one case only was the urine more alkaline at the commencement than at the termination of the disease, and in 7 it was less so. Therefore, as a general result, the Vichy waters remove the acid qualities of the urine, but induce marked alkalinity of it in only a certain number of cases; while in some of these this is very liable to disappear under various circumstances, and especially upon the supervention of diarrhœa.

The author has also in view to show that the waters often act very beneficially without any such alkaline state of the urine becoming developed, and that this, especially in other diseases besides calculus, is no touchstone of their success. Thus they are resorted to by great numbers on account of hepatic and splenic *engorgements*, biliary calculi, and dyspepsia; and M. Bartliez's recommendation that a "saturation" of the economy is to be obtained, the patients to take from two to twenty glasses of the water until it is effected, as proved by testing the urine, may, in many of these cases, give rise to the most injurious consequences. On examination of the details of his own cases, he finds, too, that in those in which the most alkaline effects on the urine were produced, only small quantities of the waters had been taken, while in others in which these had been large, slight and only temporary results followed. Even were it possible to secure alkalinity by an indefinite increase of the dose, the satiety of the patient would prevent this being resorted to, and would often compel its diminution. In the first or second day of taking the waters, the urine almost always manifests the amount of alkalinity it is destined to exhibit, and augmenting the dose does not increase it; and, as already observed, in one case only was a gradual increase of alkalinity from beginning to end observed, while in seven it gradually diminished.

The urine is somewhat earlier alkalinized in the subjects of dyspepsia, than in patients suffering from chronic liver or splenic disease, although the irritability of the alimentary canal in the former cases compels the administration of smaller doses. Probably the greater abstinence of this class of patients favours the absorption of the mineral principles of the waters. Although these waters are not, properly speaking, purgative, yet a temporary diarrhœa while taking them is by no means uncommon; and the ordinary effect of this is to reproduce the acid condition of the urine, or at least to notably diminish its acquired alkalinity. Of 22 cases in which diarrhœa occurred, the urine became acid again in 14, neutral in 2, and less alkaline in 1, remaining stationary in 5. In 2 of the cases it continued acid, and in 1 neutral, after the diarrhœa had ceased.—*Revue Médicale*, 1849, tom. ii. pp. 5-32.

Citrate of Magnesia and Iron.

This is prepared by dissolving recently precipitated hydrated oxide of iron in a solution of citric acid, then saturating the liquid with carbonate of magnesia, and evaporating. It forms brilliant brownish scales of a by no means disagreeable taste, easily soluble in water, and having the advantage over the ferro-citrate of ammonia of not deliquescing, so that it can be administered in powder or pill as well as in solution. It does not, moreover, induce constipation. The dose is from three to six grains. A syrup prepared according to the following formula forms one of the least disagreeable of the preparations of iron. Dissolve 8 parts of the citrate in 16 of orange-flower-water, and add 180 of simple syrup.—*Bulletin de Thérapeutique*, tom. xxvii, p. 315.

Gargle in Nervous Cough.

TOWARDS the end of catarrhs, and especially of the influenza, a dry, purely nervous cough is left, brought on by a tickling sensation in the throat or larynx. The following gargle, frequently employed, has been found of great use in such a case:—

Distilled water	500
Hydrochlorate of ammonia	15
Spirit of Minderus	60
Laudanum of Sydenham	10
Syrup of poppies	30

Bulletin de Thérapeutique, tome xxxvii, p. 526.

On the Action of Magnesia on the Economy.

TAKEN in *small* doses, magnesia is completely saturated by the acids it meets with in the alimentary canal, and the salts thus formed are absorbed. Given in *large* doses, it is only salified in part, and the portion that becomes so, by reason of its concentration, is only feebly absorbed, most of it, as well as the unchanged magnesia, passing through the canal, and determining its peristaltic action. The small doses, however, being entirely salified, the small quantity of salts thus produced are, owing to their diluted state, entirely absorbed, enter the circulation, undergo their various metamorphoses in the blood, and are finally separated from that fluid by the kidneys. It is in this case alone that magnesia acts as an *antacid*.

The *purgative* effect of *large* doses is brought about by the operation of endosmosis. The addition of a concentrated solution to the liquids of the alimentary canal disturbs the endosmotic equilibrium, by rendering these denser. A portion of the water of the blood traverses the pores of the vessels; but the new current thus engendered excites the alimentary membrane and mucous crypts to the production of an increased afflux of serosity into the canal, and eventually purgation. Such hypersecretion continues long after the purgative is expelled, and is the cause of the thirst which is felt; while that portion of the magnesian salt that is absorbed induces the diuresis which so often follows the purgation. The effect of concentration is seen in the fact that the same quantity of a salt given in a concentrated solution purges with certainty; that given in a very diluted form is absorbed, and does not purge. But in respect to large doses of magnesia there are two sources of purgative action, the principal being that just stated, and the other being the non-salified portion which mechanically irritates the canal, just as so much powdered charcoal or glass would do.

Newly calcined magnesia, when it comes in contact with the mucous membrane of the mouth, partially decomposes the ammoniacal compounds there found, and by the disingagement of ammonia gives rise to an alkaline, acrid taste, and in some persons to a disagreeable sense of irritation of the mucous membrane. This arises from the great avidity of this earth for water, which it suddenly seizes from the tissues it comes in contact with; hence the intense thirst and sense of burning, requiring large quantities of water to allay them, which some persons experience after swallowing it; and indeed if the use of this kind of magnesia be too long persisted in, it may give rise to a phlegmasia. Hydrated magnesia is nearly exempt from this inconvenience.

The salified portions of the magnesia escape by the kidneys, no portions like iodine, sulphur, &c. being found in the sweat. The non absorbed portion, whether salified or not, reaches the stools in great part in the state of carbonate. The non-salified magnesia becomes carbonated at the expense of the free carbonic acid, or of that of the alkaline carbonates found in the alimentary fluids of the alimentary canal. A portion of the non-absorbed salified magnesia, existing in the stomach in the state of lactate, becomes transformed in the intestinal canal into a carbonate. Still the whole of the magnesia is not transformed, and the quantity that becomes so varies according to the chemical state of the fluids of the alimentary canal. Normally those of the stomach are acid, and those of the lower portion of the canal may be alkaline; but the degree of acidity of those of the stomach varies according to individual peculiarity or pathological conditions. In certain pathological states, too, the fluids of the alimentary canal become acid; and this will explain why from the same quantity of magnesia, given in small doses, sometimes a simple antacid effect, and at others a manifest laxative one is produced; while after the administration of large doses the stools may sometimes be serous, at others pultaceous. Serous stools are, however, the exception, while pultaceous stools are characteristic. Magnesian fæcal stools are almost inodorous, owing to the facility with which ammoniaco-magnesian salts are formed, and with which sulphuretted hydrogen is absorbed. The *slowness* with which magnesian acts as a purgative is explained by the fact, that it especially purges in proportion to the quantity salified. The economy only containing a a limited quantity of acid, can only in a given time salify an equivalent portion of magnesia; and for this same reason the action of this substance, though so slow, may be much more prolonged than that of some other purgatives. In consequence of this slowness, too, the salified portion may sometimes be absorbed as produced, and no purgative action at all occur. As a purgative, magnesia may produce either the slightest relaxation or marked cathartic effects: but it never acts as a drastic, and does not produce nervous erethism or prostration of strength. It is of little use as a derivative purgative, and seems to exert neither a fluidifying nor coagulating effect upon the protein eleements of the organization.—*Bulletin de Thérapeutique*, t. xxxvii, pp. 120-7.

On Aqua Oxmuratica in Local Inflammations. By Dr. Cramer.

Dr. Cramer recommends this, when kept constantly applied by well-soaked compresses, and prepared shortly before using it, as the most efficacious remedy in the red, inflammatory, and painful conditions of ulcers, but especially in furuncle, of which it subdues the inflammation and limits the suppuration; and in other descriptions of inflammation, if it does not prevent, it much limits, the amount of suppuration. It is thus very useful, after leeching, in inflammations of the axillary or inguinal glands. He has employed it also as a gargle with great benefit in variola, for the purpose of limiting the number and attendant inflammation of the pharyngeal pustules.—*Casper's Wochenschrift*, 1849, No. 51.

On the Medicinal Employment of Electricity. By Dr. Terzi.

The Italian *scienziati* and *medichi* have, from the period of Galvani and Volta to the present time devoted much attention to the investigation of the agency exerted upon the animal frame by electricity, both in a physiological and therapeutical point of view. Dr. Terzi, in the first portion of his paper, furnishes an account of the results which have been derived from the labours of Puccinotti, Fario, Berrutti, Botto, Bellingeri, Malinverni, the illustrious Matteucci, and many others who have written upon the subject since the observations made upon it by Müller, in his Physiology, rendered a reconsideration of it requisite. For this, however, we have no space, and must content ourselves with a brief notice of the author's own contribution

His mode of employing electricity varies with the object he has in view, and to produce a chemical or chemico-dynamic, rather than a dynamic action, he employs Volta's Wollaston's or Daniell's pile; and the more intimately he desires to effect the chemical organism, the smaller is the pile, and the fewer elements does it consist of, so that a very feeble current is induced. This mode, he says, is further advantageous by enabling us to introduce into the economy certain medicinal substances appropriate to the nature of the case by suspending them in, and uniting them with, the conducting fluid employed. When he wishes to produce an almost exclusively dynamic action, he prefers the cylindrical machine or Leyden phial.

In cases of sensorial paralysis, in which the skin has lost its tactile sensibility, he brings the conductors into immediate contact with it, and directs the currents from the lower to the superior parts, this being the direction in which the sensorial impressions operate. In those of motor paralysis, he carries the currents into the substance of the muscles, by transfixing these with fine steel needles, which are then brought into inter-communication with each other, and with the conductors. by means of a delicate wire, and the current directed from above downwards. In order, sometimes, to produce a temporary perturbatory effect, the direction of the currents is reversed. One advantage of this electro-acupuncture is the facility it affords of especially operating upon certain muscles instead of upon the fleshy mass at random. Thus, accordingly as the flexors or extensors may have become inert, the needles are passed into either, and movements of flexion or extension induced. These movements can be maintained during a brief period, the muscles undergoing an almost tetanic contraction, and palpitating as it were under the electric influence. When the continuous current is furnished by a very small number of elements, and directed to the extensor muscles of a limb, whose flexors are powerfully contracted, this contraction temporarily disappears, the limb remaining very flexible in all directions.

Dr. Terzi relates several cases in detail, in some of which a complete cure, in others amelioration, was procured. We may mention the chief particulars of some of these. The first was a case of *paraplegia, with atrophy of the muscles of the legs, and anchylosis of the tibio-tarsal articulations*, and occurred in the person of a girl, æt. 19, who had been first seized about six months before with difficulty of deglutition; the whole of the voluntary muscles after a while became paralysed; and notwithstanding active antiphlogistic, revulsive, and antispasmodic treatment, little amendment ensued. At the commencement, some *engorgement* of the medulla was supposed to exist; but however this might have been, when the author was desired to undertake the electrical treatment of the case, he regarded it to have assumed the intensity and conditions of a primary neurosis, in obedience to his physiological views, which lead him to believe that the nerves participate in the possession or generation of that power, at all events under certain circumstances, of which they are usually merely the conductors. This induced him to encourage the patient by a sanguine prognosis. He considered the indications of treatment to be threefold. (1.) To obviate by frictions, and well-regulated gymnastic movements, the atrophy, as far as it depended upon inaction and impaired circulation. (2.) To stimulate separately the activity of the spinal marrow, and of the nerves of the lower extremities, by a gentle current or slight shocks. This was effected as regards the medulla by passing a long needle between two of the vertebræ at the upper part of the spine, and another between two at the lower, and bringing them into inter-communication with each other and the pile, connecting the positive pole with the upper needle. For the limbs, a greater number of needles were passed into the substance of the muscles. (3) To bring the respective parts into a unison of action, by directing shocks rather than a current from the spine towards the limbs, previously connected by needles. He commenced with a very feeble action, produced by a few pairs of plates, adding to the conducting fluid strong infusion of arnica and valerian; and as he desired an increase of activity, augmenting the number of plates, and adding vinegar to the infusions, until he reached fifty pairs of large plates. When the electricity was employed in the form of a gentle current, the sittings lasted forty minutes, but when shocks were arrived at, only thirty minutes; and at every sixth or seventh day, a day or two of rest was allowed. It is a painful procedeure; but the girl, full of courage, bore it well, and was rewarded by perfect cure. The steps are too long to detail; but we may state that, after forty days, the treatment was suspended (though great improvement had been achieved) on account of the coldness of the season, to be resumed again in the summer; when, after twenty-five other applications, the cure became complete.

The *second* case was one of very recent *hemiplegia*, occurring in a man æt. 35, a subject of pellagra. He was treated for a supposed hyperæmia of the cerebro-spinal axis without benefit, and then submitted to Wollaston's pile for about a month, which sufficed for his complete restoration. This case confirmed Professor Mariannini's view of the great efficacy of elctro-acupuncture as a means of acting on the *morale* of the patient; for the man previously, in deep despondency, now conceived the highest hopes of cure, which doubtless co-operated in its production. The third case was one of *facial paralysis*, coming on in a man (æt. 30) given to venery, and preceded by disturbance in the head. After antiphlogistics and derivatives had been tried in vain, the conductor from the positive pole was brought in contact with the skin, sometimes at the angle of the jaw, and sometimes at the external meatus; that attached to the negative pole, sharpened into a fine point, being carried in the direction of the paralysed muscles. Slight but frequent shocks were thus transmitted, during half an hour, for fifteen days, soon after which all traces of disease disappeared.

A case is detailed to show the efficacy of electricity in *constipation from intestinal paresis*. It occurred in the person of a lad (æt. 11), who also suffered from glossoplegia, and a paralysis of nearly all the voluntary muscles of the trunk and limbs. Defæcation was sometimes involuntary, and at others only producible by violent drastics. In spite of the best treatment, the paralysis had been stationary for some years. When the author saw him, he had not had a stool for fifteen days, and all purgatives were vomited and glysters returned. With the view of exciting the suspended peristaltic movements, the conductor from the positive pole of a pile was brought in contact with the tongue, and that from the negative, previously covered with a thin piece of cloth, carried into the rectum. The patient could not tolerate the sensation in the rectum until the pairs of plates had been reduced to eight when a current was passed in for twenty minutes. Very obvious movements were induced in the abdomen, and were followed by pains, but no stools. Repeating the galvanism next day, very severe pains were excited in ten minutes; and by the aid of a glyster, an abundant discharge of fæces procured.

Besides the above, he relates four cases of *hemiplegia, with glossoplegia* in which great amelioration was produced, but not a cure, in consequence, apparently, of an insufficiently long perseverance on the part of the patient. In two other cases of *hemiplegia*, no amelioration resulted. In both, the paralysis followed severe attacks of apoplexy; and the author's experience agrees with that of others, in demonstrating that, when the brain has been seriously and primarily compromised, and the use of electricity long delayed, the progressive improvement and complete cure obtainable in other cases is never to be expected.

A case of *bronchocele* was likewise successfully treated by electro-acupuncture. The number of plates employed amounted to from sixteen to twenty, and upon the intervening discs of cloth, moistened in an acid or saline solution, a little *tinct. of iodine* was dropped. The tumour at first became painful, and increased in size, but soon after diminished. In two cases of *nervous amaurosis*, he tried the effect of continuous currents, as recommended by Professor Finella, but with no conclusive results.—*Bulletino delle Scienzi Mediche*, ser. 3, tom. xv, pp. 176 and 308.

FORENSIC MEDICINE AND TOXICOLOGY.

On the Hydrostatic Test. By Dr. Casper.

Dr. Casper states, that the very numerous opportunities he has had of investigating suspicious deaths, enable him to protest against the doubts which have been thrown upon the validity of this test. Of what value is the objection derived from the possibility of *emphysema pulmonum* being present, for who has ever seen a pathological emphysema in a new-born child ? So, too, in speaking of the possibility of *artificial inflation*, we forget the nature of the cases which practically come before us. They are examples of solitary and clandestine delivery ; and who is to act the perfidious part of infiltration ? Moreover, every one who has tried it for himself must know how difficult it is to fill the lungs of a new-born child with air, and only once in about ten times can it be accomplished to the extent sufficient to alter the indications of the test. The objection derived from the effects of *putrefaction* is more important, but the careful judicial physician will never be deceived even here. It results from the author's repeated investigations, that the lungs are among the organs which latest undergo the process of putrefaction ; and we may with certainty declare, that if lungs taken from a fresh or only slightly putrified body swim, they do not do so in consequence of putrefaction. Even when the child and its lungs are in an advanced state of putrefaction, the test may be of value when it furnishes a *negative indication ;* e. g. the lungs sinking, even when far advanced in putrefaction, as Dr. Casper has frequently observed them to do. A remarkable case occurred to him, in which the heart of a very putrid child swam, but in which the lungs sank. As to *atelectasis*, it is very rarely met with to a great extent in new-born children ; and when it has been said to have been so, this has arisen from the products of inflammation, which, unaided by the microscope, may easily happen, being mistaken for it. The author exhibited to his class the lungs of a child who died when eight days old from pneumonia, and which, throughout, were of the brownish-red colour and compact consistence of those of a dead-born child, and even the smallest portions of them sank in water. It is true that we very frequently meet with small isolated patches of atelectasis in the lungs of new-born children, but these should exert no influence in our appreciation of the test —*Casper's Wochenschrift*, 1849, No. 47.

Case of Poisoning by Concentrated Sulphuric Acid. By Dr. Rapp.

Attempts at suicide with this substance are not altogether rare, but its irritating qualities usually compel the individual to desist before much is swallowed. In the present case, however, it was exactly ascertained that a citizen of Bamberg, whose head had become turned by the troubles of the times, drank off three and a half ounces of the fuming acid ! He retained his senses until his death, forty-five minutes after, and complained (by signs) of intense pain in the region of the sigmoid flexure of the colon.

On examination, the mucous membrane of the mouth and throat and larynx were found of a leathery consistence, as if tanned, the muscular substance beneath being undestroyed, but almost white. The leathery consistence was observable throughout the first third of the length of the œsophagus ; in the next third, where the tube is narrower, it was corroded, the mucus membrane and muscular coat being perforated ; but along the last third of its course, during which it again widens, the leathery appearance was again visible, the corrosion resulting from the acid passing more slowly over the narrow portion. The cardia was also leathery ; but the mucous membrane and muscular coat of the stomach were nearly destroyed, some black shreds only remaining, the contents of the organ being still surrounded by the serous membrane, which, however, gave way on handling. The pylorus, though thickened, admitted the little finger. The small intestine was, for a space of about twelve inches, shrivelled up and unusually thick, looking as if it had been preserved for a month in alcohol. It contained chyme, unmingled with any yellow colouring matter, and, indeed, perfectly white. As no corrosion was present, but only thickening and change of colour observed, the acid had probably not reached so far in great quantity. The liver was deprived of colour externally, but as a section exhibited it of a normal appearance within, this was probably due to the chemical effect produced by the acid during the examination. The lungs, greyish externally, were found somewhat œdematous on incision. The left cavities of the heart contained hardly any blood; but a little fluid blood, of normal colour, was found on the right side. The entire coverings of the skull were as reddened as in death from suffocation, and six or seven ounces of blood flowed out after they were divided; but neither the brain, its sinuses, nor its cavities, exhibited any accumulations of this fluid. The excess in the external coverings of the skull seems to have been due to the closure of the gullet and air-passages induced by the action of the acid. —*Buchner's Repertorium*, N. S., B. iii, p. 408.

On the Employment of Olive-Oil in Viper-bites. By Dr. Dusourd.

Dr. Dusourd relates five cases in which olive-oil seemed to exert a very decided effect, in arresting the already developed symptoms of poisoning from viper-bites. In some, the symptoms had reached a very alarming height, when warm olive-oil was administered abundantly by the mouth, and, when the patient could not swallow, by the rectum, constant frictions of the tumefied limb with the same being kept up. To these last, indeed, the author attaches most importance. In all, a period of from seven to fifteen minutes elapsed before the symptoms came on. Under the influence of the constant frictions, the swelling always diminished, to return again when these were suspended. The firm application of a ligature above the bitten part greatly impeded the extension of the tumefaction. Other cases are related in which this means was not resorted to, and which terminated fatally. The author refers to the favorable opinion of this employment of olive-oil, communicated by Mortimer to the *Académie des Sciences*, and derived by him from observation of the procedures of a London snake-dealer. The irritation caused by the stings of wasps and bees may be soon relieved by the application of compresses soaked in oil.—*Bulletin de Thérapeutique*, tom. xxxvii, p. 489.

[Olive-oil has been before employed for this purpose, especially in countries where abundance of it can be promptly procured; but we notice M. Dusourd's communication, because it is based upon somewhat detailed cases. As an application for the stings of insects it is also a well-known, if not a very efficacious remedy. With respect to these latter, we may observe, that the investigations of Professor Will ('Schleiden and Froriep's Notizen,' N.S., Band. vii and viii) have led him to attribute the irritating effects of the hairs of certain caterpillars (especially the *procession caterpillar*), the stings of bees, wasps, &c., to the presence of *formic acid*, which they contain in considerable quantities, and in sufficient concentration to reduce the salts of silver and mercury. Applied to the skin it produces no effect, but if it be introduced beneath this by means of a needle or a clean hornet's sting, great irritation follows. Dr. Gorup-Besanez, following up the investigation, has found the same substance in stinging-nettles (Buchner's Repertorium, Band. iv, p. 29). Dr. Buchner, however, expresses his conviction that formic acid is not the essential, or at least the sole, cause of the irritation which nettles and the stings of insects produce. He has inoculated himself with some of it by means of a needle, and has only been able to induce a slight temporary irritation, such as would be produced by citric or tartaric acid.]

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INDEX TO VOL. V.

OF THE

BRITISH AND FOREIGN MEDICO-CHIRURGICAL REVIEW.

PAGE
Abortion, prophylaxis of . . . 548
Abscess of brain, remarkable case of 544
Aconite in dysentery 275
African coast, Dr. Daniell on . . 85
Agapamone, the 374
Ague, treatment of, by quinine . 534
Algæ, British Marine, Dr. Harvey on 513
Amygdaline and emulsine, action of 246
Anaphradisiac properties of lupulia 276
Anatomy in relation to Art . . 208
Anatomy, surgical Mr. Maclise on 241, 515
Anæsthesia, means of measuring, . 529
Aneurism, Brachial, case of . . 349
    popliteal, case of . . 480
    varicose, new form of . 338
Animalcule, curiously-organized . 254
Annals of Anatomy and Physiology 250
Apoplexy of cerebellum, Mr. Dunn's case of 475
Appointment-book, Medical . . 524
Aqua oxymuriatica in local affections 557
Arsenic, treatment of phagedænic chancres by 266
Arsenical paste for destruction of animals 276
Art, relation of, to anatomy . . 108
Artificial pupil 51
Artist, the Poor, ... 517
Atlas, arch of, exfoliation of . . 472
Ascites, propositions respecting . 536
Baden, suicides in 282
Basham, Dr., on nitrate of potash in acute rheumatism . . . 463
Beasley, Mr., his Druggist's Receipt-Book 244
Bell, Dr. Luther, on new form of mental disease 539
Rennet, Dr. James H., on uterine diseases 115
Bennett, Dr. J. R., his case of hemiplegia 479
Bernard, M. Cl., on Amygdaline, &c. 246
    on a special renal circulation 246
    on contractility of spleen . 528
Bile of ox, composition of . . 251
Billing, Dr., his Principles of Medicine 233
Bird, structure of the lung of . . 470
Bladder, etopia of, case of . . 529
Blood, coagulation of, M. Marchal on 527
Board of Health on extramural sepulture 492

PAGE
Bones, Mr. Stanley on diseases of . 193
    diseases of, illustrations of . 413
Bone, new anatomical elements of . 528
Bowditch, Dr. on hemorrhage from the umbilicus 547
Boeck, Dr., on Spedalskhed . . 171
Brachet, M., on signs of death, . 280
Brown-Sequard, M., on section of sciatic nerve . . . 247
    on contractile tissue of the skin 248
    on cadaveric rigidity 249, 525
    on movements of rotation 249
    on medulla oblongata . 526
    on rythmical movements of muscles after death . 529
    on measurement of anæsthesia and hyperæsthesia . 530
    on reflex action . . 533
Calculus, large salivary . . . 355
Cancer, case of relapses of . . 545
Caries of the forehead, &c., case of 257
Casper, Dr., on the hydrostatic test 560
Cataract, Desmarres and Dieffenbach on 69
    congenital, M. Tavignot on 267
    depression of . . . 343
    maturation of . . . 263
Caustics, use of in stricture . . 323
Cerebellum, case of apoplexy of . 475
Charcoal, dressing of wounds with . 546
Charities, medical, abuse of . . 518
Children, hospitals for . . . 362
    catarrhal pneumonia of - 535
Chloroform, apparent death from, treatment of 546
Cholera and sanitary reform . . 217
Chorea, Dr. Todd on . . . 18
Citrate of magnesia and iron . . 556
Coagulation of blood, M. Marchal on 527
Cock, Mr. E., his cases of hernia . 79
Cohesion of tissues . . . 530
Combe, Dr. A., on Digestion . . 226
Conolly, Dr., his remonstrance in Miss Nottidge's case. . . . 372
Consumption, Dr. Cotton's Lectures on 311
    report of Hospital for 311
Convulsive diseases, Dr. Todd on . 18
Cooper, Mr. B. B., on urinary concretions 78
Corfe, Dr., on the physiognomy of diseases 420

PAGE
Cotton, Dr., his lectures on consumption 311
Cowpox, spontaneous reproduction of 534
Cranium, fracture of 342
Cullerier, M., on evolution of syphilis 340
Cysticercus in the eye 470
Cysts of uterus 330
Dalrymple, Mr., on infusory animalcule 252
    his pathology of the eye, 241, 515
Daniell, Dr., on medical topography of African coast 85
Danielssen, Dr., on Spedalskhed . 171
Death, signs of 280
Debrou, M. on hospital gangrene . 337
Delle Torre, his Anatomy . . . 108
Depaul, M. on diminishing the size of the child 270
Depression of cataract, M. Gosselin on 343
Desmarres, M., on eye-surgery . 51
Diffusion of liquids 530
Digestion, Dr. A. Combe on . . 226
Directory, medical 524
Diseases, physiognomy of . . . 420
Dislocation of knee, case of . . . 346
    of lower jaw . . 336, 339
Double uterus, case of 81
Douche, uterine, premature labour induced by 269
Druggist's Receipt-book, Mr. Beasley's 244
Dunn, Mr. R., his case of apoplexy of the cerebellum 475
Durand-Fardel, M., on waters of Vichy 555
Dysentery, chemistry of . . . 245
    on aconite in . . . 275
Ear, diseases of, pathological researches into 472
    pathology of, in typhus . . 538
Ecchymosis, brachial, M. Malgaigne on 260
Etopia of bladder, case of . . . 529
Elasticity of tissues 530
Electricity in paralysis of bladder . 354
    manifestation of, in horse 253
    medical employment of . 558
Electro-magnetism, influence of, on skin 248
    influence of, on cadaveric rigidity 249
Ellis, Mr., his demonstrations of anatomy 240
Empirical systems, relation of to true medicine 285
Engorgements of uterus, discussion on 549
Epilepsy, Dr. Todd on 24
Escallier, Dr., on varicose tumour of scrotum 350
Ethics, medical 285
Evening Thoughts 509
Exophthalmos after scarlatina . . 258
PAGE
Extra-uterine pregnancy . . . 267
Extramural sepulture 492
Eyes, diseases of, Desmarres and Dieffenbach on 51
Eye, pathology of, Mr. Dalrymple's 241, 515
Facial nerve, effects of tearing of . 249
Fau, Dr., his Anatomy for Artists . 108
Flood, Dr , his Anatomy of Arteries 519
Fœtus, injury of, within the uterus . 471
Fractures of head, mortality of . 264
France, Mr., his case of ptosis . 77
Funis of remarkable length . . 548
Furunculus, epidemic 535
Gairdner, Dr., on gout 182
Gangrene, hospital, Mr. Debrou on . 337
Gargle for nervous cough . . . 536
Garrod, Dr., on oxalic acid in blood 481
Gelatine, non alimentary properties of 532
Glaucoma, Dr. Fario on 543
Goodsir Prof., his Annals of Anatomy and Physiology 520
Goose, larynx of, in that of a child . 260
Gosselin, M., on depression of cataract 342
Gout, Dr. Gairdner on *182*
Graham, Prof., on diffusion of liquids 530
Gull, Dr., on the nervous system . 1
Hancock, Mr., on hernia . . . *482*
Harvey, Dr., on British marine algæ 513
    his sea-side book . 234
Hassall, Dr., his Microscopic Anatomy *154*
Heart, needle found in 259
    wound of, not immediately fatal 261
Heart's sounds, cessation of, as sign of death 280
Hemiplegia, Dr. Gull on . . . 44
    Dr. J. R. Bennett's case of 479
Hemorrhage from the umbilicus . 547
Hernia, Mr. Cock's cases of . . 79
    Mr. Hancock on . . *482*
    femoral, M. Malgaigne on . 540
Holden, Mr., his manual of Dissection 239
Homœopathy, and other empirical systems 285
Horse, electricity in 353
Hospital for Consumption, report of *311*
Hospitals for Children 362
Hugel, Dr., on hospitals for children 262
Huguier, M., on cysts of the uterus . *330*
Humboldt, Baron, his Views of Nature 427
Hunterian Oration, Mr. Skey's . 499
Hydropathy, and other empirical systems 285
Hydrostatic test, Dr. Casper on . 560
Hygiene, tropical 85
    private, Dr. Monlau on . 243
Hygeism, relation of, to true medicine 285
Hyperæsthesia, means of measuring 529
Hysteria, pathology of 34
Iceland, sanitary condition of . . 456

PAGE

India, on the diseases of . . . 85
Infanticide, attempted, case of . . 279
Injury of fœtus, within the uterus . 471
Injuries, relative mortality of . 281
Insanity, medical jurisprudence of 278 372
Jaundice, nitrate of silver in . . 275
Jones, Dr. Bence, on the urine . 250
Jones, Mr., his case of intra-uterine injury of fœtus 471
Knox, Dr., his Anatomy for Artists 108
Landsborough, Mr., his British Sea-Weeds 238
Larynx of a goose in that of a child 260
Leeches, preservation of 274
Leoanardo da Vinci, his Anatomy . 108
Lever, Dr., his obstetric cases . 74
Liebig's report on chemistry, &c. . 514
Liquids, diffusion of 530
    motion of, in narrow tubes 526
Little, Dr., on use of opium at Singapore 236
Lower jaw, dislocations of . 336, 339
Lumleian Lectures, Dr. Todd's . 1
Lunacy, medico-legal relations of . 372
Lung of the bird, Mr. Rainey on . 470
Lupulin as an anaphrodisiac . . 276
Mackenzie, Dr., his case of cysticercus in the eye 470
Mackinnon, Dr., on Indian hygiene 85
Maclise, Mr., his Surgical Anatomy 244 515
Magnesia, action of, on the economy 556
Magnesia and iron, citrate of . . 556
Malgaigne, M., on brachial ecchymosis 260
    on femoral hernia . 540
    on retention of urine after delivery . 549
Man, races of, Dr. Pickering on . 238
Marsupialia, teeth of 245
Marx, Dr., on anatomy for artists . 108
Mecklenburgh, suicides in . . 282
Medical ethics 285
    portrait gallery . . 521
Medicine, Dr. Billing's principles of 283
    true relation of to empirical systems . . 285
Medulla oblongata, M. Rrown-Sequard on 526
Mental disease, new form of . . 539
    diseases, causes and morbid anatomy of . . . 478
Mesmerism, relation of to true medicine 285
Microscopic Anatomy, Dr. Hassall's 154
Monlau, Dr, on private hygiene . 243
Muscles, movements of after death . 529
Naegele, Dr., on induction of premature labour 269
Nævus, treatment of . . . 259
Nasmyth, Mr., on the teeth . . 356
Nature, Views of, Baron Humboldt's, 427

PAGE

Needle found in the heart . . 259
Nervous system, physiology of . 1
Nimes, mortality in prison at . . 227
Nitrate of potash, in acute rheumatism, 465
Nitrate of silver in jaundice . . 275
Nostrils, removal of foreign bodies from, 544
Notammata, animalcule allied to . 254
Nottidge, case of Miss . . . 372
Occiput, soft, of children . . . 254
Occlusion, dressing of wounds by . 262
Oldham, Dr., his obstetric cases . 81
Olive oil, employment of in viper-bites 561
Opium, use of at Singapore . . 236
Oxalic acid in blood, case of . . 481
Paris, mortality in from puerperal fever 273
Paralysis of bladder, electricity in . 354
Paraplegia, Dr. Gull on . . . 38
Pathology, connection of with Physiology 230
Phagedænic chancres, treatment of by arsenic 266
Phlebitis, Dr Novellis on . . 543
Phosphorus-paste for destruction of animals . , . . . 276
Physiognomy of diseases, Dr. Corfe on 420
Physiology, applications of to pathology 230
Pickering, Dr., on races of man . 238
Pneumonia, catarrhal of children . 535
Poiseuille, M., on motion of liquids in narrow tubes 526
Poisoning by crustacea . . . 278
    by strong sulphuric acid . 560
Polypus, uterine, case of . . . 345
Poor Artist, the 517
Portraits of distinguished medical men 521
Pregnancy, extra-uterine . . 267
    simultaneous extra- and intra-uterine . . 553
Prisons, Indian, mortality in . . 106
Prison of Nimes, mortality in . . 227
Prolapsus uteri, during parturition . 268
Prussia, statistics of medical profession in 278
Prussian army, revaccination of . 258
Ptosis, case of 77
Puerperal fever, Dr. Gamberini on . 553
    mortality from 273, 468
Quinine, large doses of, in ague . 534
Races of man, Dr. Pickering on . 238
Rainey, Mr., on the anatomy of the lung of the bird 470
Rational medicine, Dr. Al. Wood on 522
Reflex action, M. Brown-Sequard on 533
Reform, sanitary, necessary for . 217
Regeneration of sciatic nerve . 248
Renal circulation, M. Cl. Bernard on 246
Report on chemistry, &c. by Liebig . 514
    of Consumption Hospital . 311
    on extramural sepulture . 492

PAGE
Revaccination in Prussian Army . 258
Rheumatism, acute, nitrate of potash in 465
Rigidity, cadaveric, influence of electricity on 249, 525
Robert, M., on fracture of cranium . 342
    on luxation of jaw . 339
Robin, M., on new elements of bone 528
Rotation, movements of . . 249
Routh, Dr., on the puerperal fever of Vienna 468
Rupture of uterus at full time . 271
Salivary calculus, large . . . 355
Salt, experiments on the use of . 253
Sanitary economics, Dr Stewart on 518
Sanitary condition of Iceland . 456
Sanitary reform, necessity for . . 217
Sarcocele, syphilitic, M. Vidal on . 353
Scarlatina, exophthalmos after . 258
Schleisner, Dr, on the sanitary condition of Iceland . . . 456
Sciatic nerve, changes following section of 247
    regeneration of . . 248
Scrotum, varicose tumour of . . 350
Sea-Side Book, Dr. Harvey's . . 234
Sea-weeds, British, Dr. Harvey on . 513
Sea-weeds, British, Mr. Landsborough on 238
Sepulture, extramural . . . 492
Singapore, use of opium at . . 236
Singultus, sulphuric acid in . . 274
Skey, Mr., his Hunterian Oration . 499
Skin-diseases, portraits of . . 241
Skull, fractures of, mortality of . 264
Smallpox, case of, without obvious contagion 533
Spedalskhed, Drs. Danielssen and Boeck on 171
Spleen, cóntractility of . . 528
Stammering, on the treatment of . 528
Stanley, Mr., on diseases of bones . 193
    his Illustrations of Diseases of Bones . 413
Stewart, Dr., on sanitary economics 518
Strabismus, treatment of . . 71
Stricture of urethra, Syme and Wade 323
Suicide, statistics of . . . 282
Sulphuric acid, case of poisoning by 560
    in singultus . . 274
Superfœtation, case of . . . 548
Supernumerary vertebra, case of . 248
Surgical Anatomy, Mr. Maclise's 241, 515
Surgical Anatomy of Arteries, Dr. Flood's 519

PAGE
Sykes, Col.. on the mortality of the Indian army 90
Syme, Mr., on stricture of the urethra 323
Syphilis, evolution of, M. Cullerier on 340
    non-communication of, to animals 341
Syphilitic inoculation, as prophylaxis 261
Teeth, Mr. Nasmyth on . . . 356
    of Marsupialia, Mr. Tomes on 245
Tetanus, Dr. Todd on 22
Tinnitus, chlorotic 234
Todd, Dr. on the nervous system . 1
Tomes, Mr. on the teeth of Marsupials 245
Toynbee, Mr., on diseases of the ear 472
Tropical hygiene 85
Tubes, motion of liquids in . . 526
Typhus, pathology of ear in . . 538
Vagitus uterinus 272
Varicose tumour of scrotum . . 350
Vertebra, supernumerary . . 248
Vichy, action of waters of . . 555
Vienna, mortality at, from puerperal fever. 273, 468
Views of Nature, Baron Humboldt's 427
Vulcanized caoutchouc, for plugging vagina 269
Umbilicus, hemorrhage from . . 547
Urethra, stricture of, Syme and Wade on 323
Urine, case of retention of, after delivery 549
    chemistry of, Dr. Bence Jone on 250
    emission of, from ureters . 529
Uterine displacements, Dr. Oldham on 83
    Dr. Bennet on 141
    douche, for induction of premature labour . . 269
    polypus, case of . . . 345
    vagitus 272
Uterus, prolapsus of, during parturition 268
    diseases of . . . 115, 549
    rupture of 271
    cysts of 330
    inflammation of . . . 120
Wade, Mr., on stricture of the urethra 323
Walshe, Dr., his Introductory Lecture 230
Webster, Dr., on causes and morbid anatomy of mental diseases . 478
Wilson, Mr. E., on skin diseases . 241
Wood, Dr. Alex., on rational medicine 522
Wounds, M. Chassaignac's method of dressing 262
Wright, Mr., his case of aneurism . 480

END OF VOL. V.

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